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# Obstetrics: The Science and the Art - Part III. The Therapeutics and Surgery of Midwifery; Chapter X. Conduct of a Labor

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## CHAPTER X.

## CONDUCT OF A LABOR.

THE conduct of a labor comprises the whole management of a parturient patient, from the first beginning of her pains until the complete exclusion of the secundines, and it also includes all that is done for the security of the mother and the child during the period immediately ensuing the birth. As labors are extremely various in their characters as to duration, pain, facility or difficulty, the title at the head of this chapter is a comprehensive one, and fruitful of topics which, if properly handled, could not fail to prove interesting and instructive to whatsoever reader might desire, under such a head, to seek for useful, and indeed even indispensable information.

The conduct of a labor might refer to any, and so to all possible events and circumstances of Midwifery; for Midwifery, after all, is but the conduct of labors.

Any person meriting the name of obstetrician may be supposed competent to the conduct of a natural labor where the series of phenomena proceeds with rapidity and in a perfectly natural order of succession and duration, provided he will remember the oft-repeated adage, "a *meddlesome midwifery* is bad," and be willing to abstain from impertinent interferences; for a kindly Providence hath so ordered this painful office of parturition, that the accoucheur, in most cases, hath really little to do except receive and protect the child, and attend to the delivery of the after-birth; extending his care to the disposal of both the mother and her offspring for the first few hours after the termination of the conflict.

The bearing of children, however natural and healthful it may be in the great majority of women, is found to be sometimes so painful, so difficult, so dangerous and even impossible without help from without, that every woman about to be confined, ought to be provided with a skilful adviser or assistant, because in the most natural labor there is at least some risk that the patient might hurt herself or that the child might suffer injury or death from the want of prompt scientific aid. This liability, which has always existed, must ever continue



to render our calling indispensable in all civilized states; for, to use the quaint expressions of the oldest English work on Midwifery, I mean the *Woman's Booke*; or, *the Byrthe of Mankeynde*, by Thomas Rainalde, *Physition*. Fol. XI.: "The Mydwylfe muste enstruct and comfort the partie, not onlye refreshyng her with good meete and drinke, but alsoe with sweete wordes, gevyng her goode hope of a speedeful deliveraunce, encouraging and enstomakyng her to patience and toleraunce, byddyng her to holde in breathe so much as she may; also streyking gently with her handes her belly above the navell, for that helpeth to deprese the byrth downewarde."

The above words of Rainalde, however quaint or antiquated, really convey an idea of much that it is incumbent on the obstetrician to say and do in the exercise of his calling, and even he who practised in the reign of King Henry the Eighth, appears to have felt that if a woman in labor, affected with the wildest terror, and magnifying by a distorted view every pain, could be made to clearly understand the nature and causes of the pains, their uses and results, as well as the physician himself does, she would become tranquil, patient, contented, and even cheerful under sufferings, that should otherwise frighten her from all propriety.

To conduct a labor properly, the practitioner ought to make a correct diagnosis, which, when it is once truly made, enables him to form an opinion as to the prognosis. But, however sure he may feel that his prognosis is well founded, he should not commit the great imprudence of indicating the moment at which the labor is to end. It is quite natural and right that he should give "sweete wordes," as Rainalde says; but since it is impossible to foresee all the circumstances that may arise in the course of a labor to interrupt its course, it is best to be cautious in the making of promises, for should the appointed or promised moment arrive without bringing the expected happiness, the woman is capable of reflecting that her physician has either made a great mistake, or that he has purposely deceived her, either of which is a dilemma for him and her also. It is far better, after having acquired her confidence, to deserve it and shew her that it is well placed by telling only the truth as he knows it.

Many times does it happen that startling incidents, vexatious disappointments, and unforeseen causes of delay come to discompose the complacency, and dispel the serenity of the medical attendant. He is scarcely well fitted for his occupation who allows any signs of such influences to appear in his words or gestures, for he is there to "comfort the partie with sweete wordes," to encourage and enstomak her to "patience and toleraunce."

For most women in labor, the pulses, the respiration, and the temperature of the body, become considerably increased, and this excitement is liable to such great exaggeration as to bring the woman and the child into danger. As a moderate increase in the action of the heart, the lungs, and the nervous system is a natural condition for parturient women, any such normal state ought not to be interfered with, but it is important to keep watch, lest the phenomena should take on an abnormal character; and every careful and skilful physician should be ready to apply the checks and remedies for these disordered actions of nature. Any excess of excitement ought to be counteracted at once to prevent it from passing into fever, into inflammation, or convulsion, or exhaustion, which are not uncommon results.

It is only under extraordinary circumstances, as where the woman happens to be seized with some disease while in labor, where there is something wrong in the presentation or the position of the child, some fault in the form of the pelvis or of the child itself, that the accoucheur is called in to interfere with a process so natural and so healthy as that of childbirth. Indeed, the chief part of the surgeon's duty consists in giving such directions as may be requisite to prevent the woman from injuring herself, and in inspiring that confidence in her own powers, which she is apt to lose when suffering under the intolerable pains, or despairing of the hoped-for relief which seems to her to grow more and more remote as the crisis comes nearer and nearer.

The mind of a parturient woman is often observed to be in a sort of tumult, so that she grows bewildered with doubts and fear, and pain, and she greatly needs the comfortable words which would mean nothing in her case, unless uttered by a person in whose skill and knowledge, derived from long experience, she could confide. Women are sometimes observed to become so much disordered by this doubt, fear, and anguish, as to give no heed to, and take no comfort from the words of the medical attendant, and so, fall into great danger from the reaction of mind on the body, the progress of the labor being suspended, or its course quite perverted. But if some other physician happens to be called in, one on whose knowledge and good judgment she is willing to rely, the whole scene changes, and the process begins to go on with regularity and without further complainings or any disorder whatever.

I have often supposed, in observing the good influence of kind and confident assurances, and intelligible explanations given to parturient women, that a great part of the distress they experience in childbirth is due to the alarm and doubt that attend it, and that to take away or annihilate the panic element of labor, would be to deprive the act

of parturition of a large share of its anguish. I have in a great many instances observed, that the pains have fallen, or become irregular and spasmodic, in consequence of this constitutional irritation, and that they recovered their vigor and regularity by removing the excess of bedclothes, bathing the hands, face, and throat with cool water, and by the exhibition of cooling drinks, together with free ventilation of the apartment. Great comfort and even renewal of strength, hope, and courage, commonly follow a change in the outward circumstances of the patient, as to her bed and other things relative to her labor. Thus a woman who may have been lying for seven or eight hours upon the same spot, comes, at last, to sink into a sort of pit made by the weight of her hips. The continued escape of fluids, as urine, liquor amnii, blood and serum, which are all heated by the heat of her own body, is frequently found to wet her up as far as the shoulder blades: and she remains pinioned as it were to the spot, and as if lying upon a blister, aching in every limb, and imploring death, which she really expects. Such a person should, as a mere act of humanity, be taken up, cleansed from head to foot, and replaced upon a bed made up with clean bedclothes. In cases where these simple cares would not suffice, I have often re-established the regular course of events by taking blood from the arm.

Notwithstanding most women have a greatly increased frequency and force of the pulse during the more active stages of labor, it is not universally the case; some females passing through the whole process without any change whatever in the rate of the circulation.

CASE.—The following case was under my care on the 9th of February, 1828. Mrs. B., aged twenty-five years; in labor with her first child; was attacked with the pains at seven o'clock A. M., and was delivered at twelve o'clock of a healthy female infant. The whole amount of blood discharged at the separation of the ovum did not exceed three ounces. The pulse was very slow throughout the labor, not exceeding *sixty-five pulsations per minute*, even during the most violent expulsive pains. Some time after the complete expulsion of the secundines, the os uteri was two inches in diameter, and as hard and smooth as a ring of ivory.

CASE.—November 3, 1840, I attended Mrs. W. C. L., aged twenty-two years, in labor with her first child. The pulse during the whole process never rose above seventy-two, and soon after the birth of the child fell down to sixty-five beats per minute. The labor commenced at two o'clock A. M., and terminated at five o'clock P. M. The pains,

even the great ones, were but a few minutes apart, so that I have rarely witnessed a more tedious one, notwithstanding many have fallen under my notice which were much more protracted. I could cite from my practice many cases in which the pulse was quite unaffected throughout the whole process of parturition.

Professor Dewees was celebrated for the boldness and good judgment with which he resorted to venesection, in some cases of labor. The quantity drawn by him, in instances he reported, although, doubtless, fully demanded by the exigencies at the time, and justified by the results, may, nevertheless, have induced some persons of lesser powers of discrimination unnecessarily to resort to a similar mode and extent of depletion; hence, it is not uncommon to hear of very large bleedings, of thirty to forty ounces at a time, during labor. I must say, that I think such very large abstractions of blood not often necessary, and therefore, take this opportunity to warn the reader to discriminate carefully concerning the quantity to be drawn in each particular case. For example, where the woman has become too much excited as to her circulation, in the manner above pointed out, I have no idea that it is necessary to draw away a great quantity of blood: let him not bleed until the pulse becomes soft—he does not want a soft pulse. In labor, or at least in the violent stages of labor, the pulse ought to be full, vigorous, and somewhat accelerated. If he bleeds till the pulse becomes soft, he will substitute for a state of excitement and excessive power, one of debility and lowness, quite as much to be deprecated.

The purpose of venesection, in the instances I at present propose, is to take off the strain of the bloodvessels—to mitigate the general excitement which ensues upon too rapid a revolution of the blood. I therefore think that it is better, for the most part, to limit our bleedings, for these general purposes, to something under, rather than over sixteen ounces. But on the other hand, where symptoms, strongly threatening apoplexy, convulsions, pulmonary hemorrhage, inflammation, &c., make their appearance, the lancet should be used in the most fearless manner. The same is true of those cases where a great relaxation of the tone of the tissues is required for some special and pressing object, such as the relaxation of a strictured vagina or very rigid uterus, the removal of a violent congestive or inflammatory accumulation of blood in the brain, &c. &c.

The facility and promptness with which the alvine discharge can be effected by means of enemata, makes a resort to them very common; and, in fact, where only a slight reduction of excitement is wanted they fully answer the end proposed; yet a dose of some neutral salt, mag-



nesia, or castor oil, may be beneficially administered where there is sufficient time for the alvine operation to take place before the delivery of the child. Aperient doses are useful in some labors, because it cannot be doubted that the constitutional disorder brought on by the pain and fatigue of labor, must, in some measure, extend to the digestive organs; nothing, indeed, is more common than to meet with parturient patients who vomit very much; while water-brash, heartburn, and sour eructations are also exceedingly common, and often quite distressing.

As to the exhibition of purgative medicines to women in labor, it ought to be understood that, in the selection of the article, care should be taken to provide one not likely to operate violently; which would be objectionable, as to the trouble it might give during the parturient process, and the inconvenience experienced by alvine operations soon after the birth of the child. For my own part, though I prefer, in general, that such a patient should not have a dejection until the third day, I commonly advise a dose of castor oil where I have to fear a long and reluctant dilatation of the cervix. I administer the drug in such cases, because I seem to have observed that the operation of it tends to suspend the power of the cervix and os uteri, or relax the sphincterian force of the retentive fibres of the uterus, just as it does that of the sphincter ani muscles. It excites also the expulsive faculty of the womb, as it does that of the colon and rectum, and abdominal muscles.

CASE.—This day, September 2d, 1848, I found an os uteri not bigger than a swan's quill, though the waters had gone off full fourteen hours, and the woman had had sharp pains for eight hours. I gave her a tablespoonful of oil, and in three hours the child's head had passed through the dilated os into the vagina.

The foregoing remarks show not only that medicines of an aperient kind are frequently indicated in obstinate and protracted labors, but they ought to show that care is required as to the exhibition of food to such patients: some food is wanted, particularly for those whose pains are of so lingering a kind as to allow the process to remain unfinished for many hours. For the most part, tea, bread, or gruel, sago, &c., are found to suit the patient best. The fittest drinks are gum-water, toast-water, lemonade, cold water, and such like articles; the object being to sustain the system by means of nutriment and drink while under severe effort, at the same time carefully avoiding to call the force in the direction of the digestive organs by overtasking them. The whole powers of the economy should, therefore, be hus-

banded and preserved as much as possible in their normal condition, in order that they may be directed and determined towards the womb and its auxiliary organs. In the case of a very slow labor, which should be unattended with constitutional symptoms, or any evidences of gastric disorder, a light broth, or even some small portions of very digestible meat, might, upon due reflection, be allowed to the patient.

**Decubitus.**—The attitude of the patient exercises, in many cases, a notable influence on the progress of labor. It is the almost universal custom in this country and in England, to direct the woman to lie upon her left side, with the knees drawn up; a posture which is highly convenient to the practitioner, and productive of the least possible exposure. But where the labor proceeds slowly, the heat and the pressure occasioned by lying still in the same position, become injurious. The woman ought, therefore, to be directed to turn on her back, or even on the opposite side, or to rise and sit in an easy chair, from time to time. I do not recommend that she should be too much urged upon this point; and I note, that the influence of custom is so great, that a proposition to turn on the back is not unfrequently received with something like astonishment and aversion by the bystanders, who seem to regard that attitude as, at the least, indelicate. Hence, it is proper to assign reasons for the request.

Where the retardation arises from an improper direction of the expulsive forces, it is of the highest importance to direct the patient as to her attitude. For example, if a lateral segment of the os uteri can be felt towards the middle of the pelvis, and the other one is either out of reach of the finger, or very high up on the side of the ischium, the fundus uteri is directed to one side of the abdomen, giving more or less obliquity to the long axis of the womb, and of course an oblique line of direction to its forces, which are decomposed and so, partially nullified. A change of position to the back, or the opposite side, will bring the plane of the orifice to its proper place in the pelvis.

**CASE.**—On Sunday, November 30th, 1828, I was sent for to visit Mrs. C., whom I found lying upon her right side. The pains seemed so expulsive, that, when I arrived, I expected to receive the child immediately, for she bore down like one in the last throes of labor. I requested her to turn upon the left side, because that position was the most convenient for me. She did so. The pains now became inefficient and partook, in appearance, of the character of the grinding pains. I found that the uterus had obliqued far down to the left side,



as soon as she turned over, which interfered with the due exercise of its power. She was again placed on the right side, which brought the womb into its proper line of direction, and the labor ended, after three or four pains. Similar consequences follow from an anterior obliquity of the axis of the uterus; but, in this case, the anterior segment, or lip of the womb, seems to hold the head as in a sling or pouch—the anterior portion of the cervix being stretched across the head, far behind the middle of the pelvis, while the posterior edge of the circle either cannot be felt at all, or is found high up towards the promontory of the sacrum. It is evident that, in such a state of things, a good deal of power must be lost in pushing away the anterior part of the cervix, a power that should be determined in the proper direction. To do this we may draw the os uteri forwards towards the symphysis, and retain it there by the fingers; but there are in many cases a rudeness and violence in this plan, which will be easily appreciated by such as shall make the attempt, and who, moreover, will often find that they cannot retain it in the desirable place, without giving pain, and exerting so much force as to expose the os uteri to contusion or to rupture. If the woman lies on her back, the fundus uteri will retire towards the spine, bringing its axis into the proper range; and of course the plane of the os uteri will take its proper station; if this precaution be taken, the child will, in some instances, be delivered much sooner than if it should be omitted.

When we meet with patients who allow themselves to be violently agitated by the pains of labor, so as to require actually to be held, at a period when the perineum is in danger of rupture (and women are now and then so distressed as to lose all command of themselves), the best attitude is the one on the back, with the knees drawn up; in this position they are kept much stiller and quieter than when on the side. I had a woman under my care in November, 1833, who was so violent that two or three women could not keep her still; when I caused her to assume the dorsal position, she became passive enough.

**To Assist the Flexion and Rotation.**—I have spoken, in another place, of the dip of the occipito-frontal diameter of the foetal head. The nearer to the middle of the excavation we find the posterior fontanel, the greater is the dip; therefore in the conduct of labors, we may exert a most beneficial influence, by increasing the dip of the occipito-frontal diameter, which brings the posterior fontanel down towards the axis of the excavation; not down to the axis, indeed, but yet not far off from it. The vertex must always, at first, be towards one of the lateral pelvic walls; but where the posterior

fontanel is found quite up towards the side of the pelvis, and the anterior fontanel is at the same time within reach of the finger, we may feel assured the dip has not taken place, and the retardation of the labor may be attributed to that cause, for the chin has somewhat departed from the breast. Could we, under such circumstances, get the vertex more down towards the centre of the pelvis, the pains would be more successful. Now, the edges of the parietal bones overriding the edge of the occipital bone, form a ledge, which gives a good purchase for two fingers, which, when applied upon that ledge, can generally draw the vertex downwards to the required position. Whenever this operation is to be attempted, it should be tried during the absence of the pains; and when the vertex is once pulled downwards, it ought to be retained in its place until a new pain comes on and enables the operator to secure whatever advantage he has gained. Should the head be placed, by this gentle method, in the desired attitude, it is as easy to conceive, as it is indeed common to witness the increased facilities it affords for the delivery.

In this case it is useful to make the womb take an oblique position in the belly. For example, suppose the vertex to be to the left and unable to dip; it is clear that if the woman should lie upon her left side, the fundus of the womb would be thrust down towards the left side, and that the vertex would have less difficulty in dipping. If it should not fall down there, it ought to be pressed down with a gentle hand.

I have always found it much easier to pull the vertex down than to push the forehead up; because, the finger acting upon the ledge above described, acts upon the longer end of the lever, of which the atlas represents the fulcrum: whereas, in an attempt to push up the forehead, so situated, the lever we use is very short—its real extremity would be the chin; but we cannot reach the chin. Moreover, when we attempt any strong force, the bones of the os frontis are so yielding, that they readily indent, and we are obliged to desist for fear of contusing the brain; the fingers, in fact, being applied near the upper edge of the os frontis, where the ossification is as yet incomplete. The same objection does not hold as regards the posterior edges of the parietalia and os occipitis, which are very firm before birth.

The labor may be retarded by the failure of the head to undergo *rotation*. It is sometimes very difficult, at the bedside, to learn why the head does not rotate in a patient, who in another labor meets with no such difficulty. I am aware that it frequently arises from failure of the dip above spoken of; but I wish now to speak of a case in which the head has sunk very low, where the dip is good, yet the

rotation fails: I have on many occasions, after much doubt and anxiety, found that it could be fully accounted for by referring to the grasp of the cervix uteri, which actually bound and held the head so firmly, that it was unable to execute its pivot motion. The remedy in such cases, is patience; for as soon as all resistance of the cervix is over in consequence of the fatigue of the parts, or the acquisition of perfect dilatability, the pains will push the head down, and the inclined planes of the pelvis will make it execute its spiral or rotatory movement in the most rapid manner.

In all the cases where rotation fails for want of the requisite dip or approach of the chin to the breast, let that want be supplied by pulling down the vertex as directed, and if such gentle measures will not succeed we have the powerful resource of half the hand, which may be introduced into the vagina, and sometimes within the cervix; and which taking the head in its palm and fingers, can place the vertex wherever it may be desirable to fix it. It should be remembered, however, that a vectis is very rarely, but yet sometimes imperatively demanded for the management of such a case.

**Vaginal Vesicocoele.**—Labors are rendered slow, painful, and even ineffectual, by vaginal vesicocoele. The bladder of urine in these instances, instead of maintaining its place in front of the womb, appears to fall down below the top of the arch of the pubis, making a soft, elastic, and painful tumor there. Sometimes the depressed bladder is directed to one side of the pelvis, as in the following instance, which explains the circumstances of such a case better, perhaps, than could be done by a long dissertation.

CASE.—Mrs. B.'s labor, September 8th, 1848, 12 M. In labor since yesterday morning. Expected her confinement last month, about 15th to 20th.

She recovered from her last menstrua November 10th, 1847, and has not *seen* since that date. If we adopt Prof. Nægèle's method of calculation, and go back to October 10th, September 10th, and August 10th, which is three months, and then add to August 10th seven days, we should look for the accouchement on the 17th August. In fact, on that day she had a considerable show,—which was repeated for many days, inducing her to keep her chamber, which she has not since left. Her pains are now frequent and attended with violent tenesmus or *bearing down*. By the Touch I find the os uteri very high and scarcely to be reached—open to the size of a ten cent piece, very thick and hard; the head presents; the membranes unruptured.

Having made this careless diagnosis, and given some direction as to the conduct, and prescribed for the tenesmic distress, I saw her again in the evening about seven o'clock. The pains, it was said, had been repeated every few minutes; and upon coming into the apartment, one would suppose the child was pressing upon the perineum violently, so loud was the sound of her respiratory effort in bearing down.

She had passed the scanty urine very often; the bowels had been moved by an enema. I immediately examined, expecting to find the child's head under the arch, but was surprised to discover that it had not advanced at all since mid-day. The os uteri might be as much as an inch in diameter, and not more. While carrying the finger to the os uteri, it appeared to encounter a sort of cushion-like tumor occupying chiefly the right half of the Excavation. On the left side of the Excavation there was nothing abnormal—the finger could be pressed to the left as far as the ischial plane. Upon discovering the tumor in question, my first impression was that it was a case of pelvic enterocele like that in Dr. Bicknell's patient; but farther exploration showed that it was not in the recto-vaginal peritoneal cul-de-sac—which cleared up the diagnosis on that point. I asked again as to the urination—which had been frequent, not free.

I introduced a catheter into the urethra—but when it had advanced about two inches it stopped, nor did any urine escape. I expected to carry the point of the catheter downward and backwards into the tumor, which I now presumed could be nothing else than a cystocele, consisting of the bladder of urine, which had been crushed under the womb, and obstructed so as to be unable to discharge the whole of its contents. Finding I could not cause the catheter to advance without using imprudent violence, I withdrew it. The patient lay on the back with the knees drawn up. Introducing three fingers of the right hand far into the pelvis, when the pain was off, I pressed the palps of the fingers upon the inferior surface of the mass, and lifted it upwards towards the plane of the superior strait. Just as I had raised it partially up, there came on a violent tenesmic effort—and the urine rushed from the orifice of the urethra in jets so violent as to surprise me. In the course of three or four such jets, the whole of the urine in the bladder was expelled; the tumor disappeared, and within forty minutes, the whole of the remaining dilatation of the cervix was completed and the child delivered.

As soon as the bladder was emptied, the singular, extraordinary tenesmic efforts returned no more—but the phenomena of expulsive action were thenceforth perfectly natural and customary.

The patient, when I came into her apartment, was in a state of extraordinary excitement, representing her sufferings as intolerable; her face was redly flushed and heated, and the heart rapid and tumultuous.

This case seems to me worthy of record, first, as presenting an example of the bladder crushed beneath the uterus; second, as exhibiting the method of making diagnosis of such a case; third, as showing how it may be successfully treated; fourth, as proving that pains and distresses that contravene the co-ordinate action of the uterus in labor, being removed, the conformable play of its forces may be expected to take place; and, fifthly, as showing that where the bladder is crushed downwards below the womb in labor, it may be, for it was in this case, thrust to one side of the pelvis. In this instance, it was jammed to the right, and not at all to the left side of the excavation. In this very case, even the dilatation of the cervix was held in suspense until I relieved the bladder; whereupon the co-ordinate contractions of the womb being no longer contravened, they effected the remaining dilatation and delivery in forty minutes.

I refer the Student to p. 122 of my "Letters to the Class" for the history of a case of vaginal rectocele equally curious.

**Management of the Cervix and Os Uteri.**—The head has sunk low into the Excavation; the fontanel is in the proper position, neither too near to, nor too far from the symphysis, but it advances not at all; pain after pain passes with great suffering to the mother, and yet with no sensible advance of the head. What can occasion the retardation? The finger glides up behind the symphysis to the superior strait, and moves along the linea ileo-pectinea a considerable distance, showing conclusively that no disproportion exists between the head and the bony canal it is destined to traverse. All this uneasiness on the practitioner's part will cease as soon as he discovers that the cervix uteri, which he had thought to be sufficiently dilated to offer no farther considerable opposition, has ceased for a time to yield, and during every pain, takes hold of the head so as to prevent the parietal protuberances from escaping into the vagina. The proper remedy here, also, is patience; a small venesection; a large draught of some warm relaxing fluid; the fortunate occurrence of nausea; a careful adjustment of the axis of the uterus, and of that of the pelvis; or perhaps a few very powerful exertions of the auxiliary muscles in bearing down, to which the woman can be exhorted. I have often, after allowing myself to get into a fret relative to the slow progress of affairs, found all my uneasiness dissipated by a more careful examination as above, thus



clearly ascertaining that no other than soft obstruction existed ; whereas, from too careless an examination, I had erroneously believed that the os uteri had mounted up over the parietal protuberances of the foetal head, and that some unknown cause of retardation prevented the due progress.

**Effects of a Bad Sacrum.**—The hollow of the sacrum is the essential cause of the obstetric properties of the excavation. Those properties will be present in perfection, where the sacrum is perfectly well formed and adjusted : but the sacrum may be either too little curved or too much so ; and inasmuch as the rotation of the head requires for its regular and easy performance, a good curve in the sacrum, a very straight sacrum must offer impediments to that important act. Hence, a sacrum with too little curve will protract the period of delivery ; and in fact, a case might arise, and such a one has arisen, where no rotation at all could take place, but the delivery, at last, occurs without this important act in the mechanism of labor—the vertex coming out under the tuber ischii : a case requiring the very extremest degree of flexion of the head. Let the Student consider a moment what process must be substituted for the rotation ; the occipito-bregmatic diameter is but three and three-quarter inches, but the tubera ischii are four inches apart ; hence, where the rotation fails, there must occur a greater dip, causing the occipital fontanel to take a position nearly in the centre of the pelvic canal, by which the relations of planes between the head and pelvis are adjusted, and the occipital bone enabled to pass out under the ischium, and the parietal protuberance under the pubal arch. Such a great degree of dip may be much promoted by the help of the fingers, as before stated, and by pushing the fundus uteri as far as possible to the left, which will take time. I have found it not very difficult when the head was of a medium size.

On the other hand, if the sacrum be too much curved, its apex will jut forwards towards the pubis, so as to form a sort of shelf, on which the head lies ; the expulsive forces being vainly expended in impelling the head down upon this shelf or ledge. The gradual compression of the cranium, however, at length moulds it into the requisite form, and allows it to slide off the ledge, and the delivery takes place. It is to be understood, that the highly aggravated degrees of this vicious conformation involve the necessity of direct interference with some one of the various instruments employed in obstetric operations.

**Influence of a Badly Shaped Pubis.**—When the pubal arch is not low, but retains the character of early life, or of the male pelvis,



great retardation takes place, because the act of extension of the head cannot occur in due time. Such a narrow arched pubis compels the head to continue its descent much longer than one where the arch is broad and low. It has as bad an effect as, and indeed it is equivalent to, a long symphysis pubis; for in the ordinary conformation, as soon as the occipital bone can come to apply itself to the arch, the vertex begins to rise, extension of the head takes place, and the perineum requires no inordinate degree of protrusion.

But imagine a pubic symphysis of two and a half inches, instead of one of an inch and a half, and it is plain that the perineum must go much farther down before the head can escape under such an arch.

CASE.—A patient with a very narrow arch had been under my care in two of her labors, in which, the natural pains being insufficient, I was compelled to reinforce them by the ergotic stimulation. By violent efforts of the womb and abdominal muscles, she gave birth in both cases to living children. I need not, in self-defence, say that I waited as long as I deemed it prudent, but my confidence in her strength was in vain in each instance. In 1841, I delivered her for the third time; but was obliged to use the forceps.

**The Perineum.**—The resistance of the perineum and vulva is, in many women, so great, as seriously to retard the delivery. I have waited six hours by the bedside, after the vertex has begun to jut out between the labia, the patient all the while suffering severe labor pains, that vainly tended to expel the head. There is nothing to be done but wait patiently after having placed the woman's constitution in its proper attitude by means of venesection; by every psychiatric resource of exhortation, assurance, encouragement, and honest promise of relief; by the least fatiguing posture of the body; by the application of mucilaginous fomentations to the genital region; by the exhibition of relaxing drinks; by emollient enemata, anodynes, and the warm bath. I consider that we have no right to apply a force, additional to one strong enough, that nature furnishes, and which it is evident must be effective if left to itself. Under such perverse resistance of the soft parts, time is required to *enable* them to acquire a yielding temper. To force the head through them by the ergot or the forceps, would be to incur the hazard of shocking lacerations of the external organs of generation, or even of the womb itself, which it is rashness, in the highest degree, to stimulate and lash into fury where the uterine contractions are already very powerful, and where they

would soon effect the delivery, were it not that the external parts are unprepared to admit of it. The true principle of practice here is, to diminish the resistance, not to increase the power, already excessive, and therein dangerous. Let me be fully understood as referring, in the above remarks, only to cases where the energies of the uterus, though great and manifest, are yet unequal to the task of overcoming the resistance rapidly, and where they evidently will overcome it in a reasonable time. In other circumstances, as where the resistance is powerful and the pains poor and weak, let the just proportion be established, by means of the ergot, a glass of wine, or the forceps, between the power and the resistance it is destined to vanquish.

CASE.—Three years ago I attended a young woman in labor with her first child. The process was most painful and tedious. The head was fully six hours pressing upon the perineum and external parts, under violent uterine contractions. The child was at length born, but was dead. As this was a result which I very much feared, I was extremely desirous of applying the forceps. Would it have been justifiable to use them in a case where the contractions were so strong as to lead me to apprehend that the perineum would give way under every natural pain? I thought not. It is perhaps impossible to find expressions fitted justly to set forth the tormenting doubts and anxieties of the accoucheur in cases like this; cases where he feels that he has power to terminate the sufferings of his patient, but dares not violate the injunctions of his conscience, which tells him he may not yet intervene.

When the head begins to emerge it does so by pushing away before it the perineum, which continues to cover the cranium like a tight cap. It should be remembered that the direction of the forces is parallel to the axis of the superior strait; but it is equally true that at this stage, the direction of the movement is not in the same line; the head is repelled by the curved line of the sacrum; it is driven against the sacrum, but, coincidently with Carus's curve, glides off from its curved surface towards the outlet; from which, if unrestrained by the perineum, it would escape without much extension. It *has* happened that the head has passed directly through the perineum, perforating it as if a six pound ball had passed through, without injuring the commissure of the vulva or the sphincter muscle of the anus; and there is always supposed to exist some danger of its tearing the anterior edge of the perineum, at least when that point is unsupported. Hence, the general care of writers to direct that the perineum be supported.

From the foregoing remarks, the Student will be enabled to appreciate the value of this injunction concerning support to the perineum, and to know how it ought to be executed. He knows that a folded napkin extending from the lower part of the sacrum up towards the top of the vulva, should be pressed against the parts in such a manner as to protract or continue the inclined plane of the sacrum, whereby extension of the head will be enforced, and no danger occur of its being too strongly propelled against the now thin tissues, which might be lacerated were the head not to follow the curved line of its movements.

The degree of pressure made by the hand must be proportioned to the exigencies of the particular case. It should always assist the perineum to compel the head to undergo extension; and, where the tissues yield with difficulty, so as to furnish grounds to fear their laceration, the further advance of the head may be safely counteracted for a time by firm pressure, and by advising the woman to refrain, which she should continue to do until the soft parts acquire a sufficient dilatability.

The young practitioner, and the Student, should be warned against falling into a habit of beginning too early to support the perineum. If the part should be too early pressed upon with a napkin, it might become heated, and thus lose its disposition to dilate; and it is assuredly unnecessary to sustain it, or support it, until a certain degree of extension has put it in some danger of being lacerated.

**Cord round the Neck.**—The head is born; perhaps the cord is turned once, or even thrice around the child's neck, which it encircles so closely as to strangle it. Let the loop be loosened, by pulling the yielding end of the cord sufficiently to enable it to be cast off over the head. If this cannot be done, let the child pass through it by slipping it down along its body over the shoulders. Should it seem impossible to slip the cord over the head or shoulders either, it should be let alone; and in a great majority of cases it will not prevent the birth from taking place, after which, the cord can be cast off. Should the child seem to be detained by the tightness of the cord, as does happen, or in danger from the compression of its jugular vessels, the funis may be cut with the scissors, and tied after the delivery. Under such a necessity as this, a due respect for one's own reputation should induce him to explain to the bystanders the reasons which rendered so considerable a departure from the ordinary practice indispensable. I have known an accoucheur's capability called harshly in question upon this very point of practice. I never felt it necessary to do it but once.

**The Shoulders.**—If the shoulders should not rotate, so as to bring one of them under the arch, that motion may be given by one or two fingers, introduced, and made to act upon the shoulder nearest the pubis, so as to draw or push it into its proper place. If difficulty occur, and the shoulder does not advance, press the child back against the edge of the perineum, and that will often afford room for the advance of the shoulder, which had been thrust over the top of the brim of the pelvis by the resiliency of the edge of the perineum which is pressed against the posterior part of the child's neck, and so pushes the opposite side of the neck against the pubis. I have sometimes caused the shoulders immediately to descend, by merely pressing the perineum downwards and backwards; the shoulder, which was jammed up above the top of the symphysis pubis, slipping down behind the symphysis, as soon as the cause that pushed it forwards (namely, the pressure of the perineum) was withdrawn. Sometimes the shoulder nearest the sacrum, and at others that nearest the pubis, escapes first. The Student will readily perceive which one he ought to assist; and he will at times be compelled to try one, and then the other, uncertain which is likely to emerge first.

It is considered bad practice to drag out the body, except in very peculiar circumstances—the womb and abdominal muscles being sufficient for that end; for if it be permitted to come away slowly, we shall have a more complete contraction of the womb, and a more ready detachment and extrusion of the placenta. Therefore, it is better to leave the expulsion of the body to nature, merely removing any cause of delay that may obviate its descent and escape. Where the delay is great, and the child becomes very black in the face and the respiration is either not established or in an unpromising condition, we are fully warranted to expedite the delivery by making use of one or more fingers, fixed as a blunt crotchet in the axilla.

Soon after the child is born, the accoucheur should place his hand on the woman's abdomen, in order to learn the state of the womb.

**How to treat the Child.**—As soon as the child is born, lay it on its back, out of reach of the waters, which sometimes stand in a deep puddle by the breech of the mother; the child ought never to be exposed to the danger of suffocation.

Take care not to move it too far from the woman, as by an incautious, sudden movement of the child to a considerable distance, the umbilical cord might be violently stretched or even broken. Such an imprudence might even invert the womb; indeed, it is needful to be very careful not to stretch the cord suddenly, either before or after the severing.



If the infant breathes regularly, it is well; if not, blow suddenly into its face, and drop some cold spirit on the region of the diaphragm. These, and a few smart slaps or frictions, are, in general, all that are demanded. Take care that the infant be not rudely or suddenly handled. It ought not to be agitated by any violent or hasty motions. In many of the instances, life is already nearly extinct, and so, the child can no more endure to be rudely handled or shaken than a fainting girl. It is enough to see and know that the child lives—that its heart is beating and its diaphragm moving, for these are the two great motive powers of life. If the diaphragm moves, it is removing the atelectasis of the lungs and pouring the oxygen upon the blood; but oxygeniferous blood, sent forward to the brain by the contracting heart, extricates the biotic force from the neurine; that force is life made manifest in the motion it excites.

The cord should not be cut until the pulsations have ceased near its placental extremity: it would be vain to wait for its cessation near the child's body, as blood is thrown into the arteries long even after the ligature is applied; in fact, children do sometimes bleed at the cord hours after they have been dressed, if the cord has been imperfectly secured. There is no need to tie the cord twice, unless there be twins; which can always be ascertained by feeling the uterine tumor. Tie only one ligature, and that at the distance of an inch or two from the belly, and cut the navel-string, holding the cord tightly betwixt the finger and thumb. If it be not held, it will spirt the blood sometimes to a good distance, and soil the bed, or even the practitioner's clothes. Conceal the cut end of the placental portion of the cord in the napkin, that its blood may not fly over the bed; and then give the child to the nurse. There is danger of dropping the infant if it be not properly taken hold of. It should be seized with the left hand, by one or both ankles; the back of its neck ought to rest in the arch formed by the thumb and forefinger of the accoucheur's right hand, while its back lies in his palm, and the points of the remaining three fingers are under its right axilla. If held in this manner, it can by no means fall to the ground. I have seen a child taken hold of under the arms by both hands, and lifted up in a manner I thought quite insecure, considering that it is slippery with the waters or blood from which it had just been taken up.

**Placenta.**—In most cases, the placenta comes away in eight or ten minutes—Dr. Hunter thought in twenty minutes. The care required in regard to the placenta is considerable, for no one can say of any labor that it will end well, until the after-birth is completely discharged,

and for at least an hour after that consummation. The French call the delivery of the placenta, emphatically, *delivrance*, delivery. We should always ascertain, after having given away the child, the state of the womb. To that end, place a hand on the hypogastrium, and if a hard tumor be felt there, the womb is contracted; if the womb is either not to be felt at all, or is very soft and yielding, or very large, a few gentle frictions on the abdomen will cause it to contract; and now, if a finger be passed up to the os uteri, the after-birth will be felt either in it, or just above it; if within it, let the woman bear down immediately, while the cord is tightened by pulling moderately at it. The mass will descend slowly into the vagina, either edgewise or not; if not edgewise, one edge may be hooked down with the finger, and a few efforts of bearing down will expel it from the vulva. Remember that a placenta is as large as a dinner-plate, and the cord inserted in its middle—the os uteri contracted to the size of a dollar. To pull directly upon such a cord would be like pulling off a button from your coat, instead of skilfully unbuttoning it. Such a placenta, buttoned within the orifice, should be dextrously unbuttoned by bringing its edge to the button-hole, as one would do with his coat-button.

The placenta should be received in the left hand, and turned or rolled round several times by the right hand, in order that the membranes may gather into a string or rope, so that, when they are drawn out, none of them may be left adhering to the uterine surface, where they might give occasion to putrefaction, with offensive and injurious discharges, by detaining portions of blood. A complete, clean delivery ought always to be effected, if possible. If the woman finds, the next day, that portions of membrane are hanging out of the vulva, she becomes alarmed, or at least thinks her medical man careless or ignorant. Notwithstanding that the placenta may be carefully rolled as above directed, we sometimes find that where the membranes have been very much broken by the child, or where they are extremely delicate, the cord or rope we have formed by twisting them is breaking, so that a considerable remnant of them is about to be left in the uterus, which we cannot get possession of without passing up the hand at least into the vagina. My custom, when I find the membranes breaking, is to cease pulling until I have wrapped round my rope of membranes a small rag, which enables me to spin them still more, and thus draw them entirely away: they are so slippery that the rope cannot be twisted with the fingers, but when a dry rag is wrapped round them, we can twine them, and pull them as much as we may think needful.

Unhappily, the placenta does not always come away so soon; we may wait half an hour or an hour, for the expulsion of the after-birth,



and yet upon examination, repeated from time to time, discover that it has not come within reach of the fingers. Frictions upon the abdomen powerfully excite the peristaltic fibres of the alimentary canal, but their effects upon the womb are far more decided; it may be said, that when made upon the hypogastrium, they generally compel the womb to recommence its contraction—some wombs are so excitable, that a touch brings on the after-pains; frictions ought, therefore, to be instituted. The consent of parts, also, causes the womb to act as soon as the woman makes a strong bearing-down effort, to which she should be urgently prompted, if needful. When a contraction has been procured by frictions, or in any other way, it may be rendered permanent by pressure; therefore, let an assistant be properly taught to apply the palm of the hand over the uterine globe, and not take it off until told to do so. Such assistant, however, ought to be one worthy of the trust; an ignorant one might, by pressing at an inconvenient moment, indent the soft and relaxed fundus uteri and cause the beginning of an inversion of the organ. I have no doubt that some of the cases of inversion recited in the books were brought about in this way. In all those patients who habitually flood in labor, these precautions ought to be observed. When the hand is removed, a bandage should be ready to occupy its place. If the os uteri be very much closed, it is probable that the placenta will require a long time to come away; and I know no objection to a patient waiting for the spontaneous movement of the organ, where no hemorrhage, or other unusual appearance, is observed. Some writers have been disposed to assign a fixed period, up to which the accoucheur ought to wait, before he resorts to compulsory measures for the delivery. But there can be, or ought to be, no fixed rule on the subject except this one rule, namely, the placenta must be got away, as there is no security while it is left. I have never gone away from a patient leaving the placenta undelivered; never. I think I have never waited for its spontaneous extrusion more than an hour and a half, for I have always supposed that if it would not take place in one hour, there was little prospect of its taking place in twenty-four hours. I cheerfully admit, however, that cases may and do occur, in which a longer delay might be advisable. I have not met with such cases. I wish to be understood as speaking, in this place, of the placenta retained *in utero*, and not of cases where it is partly expelled into the vagina; for, when in the vagina, I think there can be no necessity for waiting at all; it ought to be removed at once. Ruysch, the celebrated Dutch anatomist, zealously inculcated the doctrine, that, as the expulsion of the placenta is a natural office, it ought not to be interfered with except upon the occurrence of symp-

toms making such intervention indispensable; and his authority having been deemed unquestionable, was yielded to by several physicians of eminence, who nevertheless found, after losing not a few patients from hemorrhage, inflammation, &c., that experience is the best teacher; and they therefore reverted to the custom of securing the expulsion of the secundines by artificial measures, wherever the powers of nature were incompetent to that end.

As to placenta retained by what is called hour-glass contractions, I am confident in asserting that it is always an adherent one. Where the connection of the placenta to the uterine surface has, by force of some certain inflammatory action, become preternaturally firm, the substance of the placenta acts as an antagonist to the contraction of that part of the uterus on which it sits—in fact, the placenta may be said to splint the womb, and keep its superficies extended. Now, when all the parts of the womb-fibres, except those of the placento-uterine region, are left without antagonism, they contract as usual, but the antagonized portion remains extended and splinted by the after-birth, so as to be incapable of contracting like the rest, which, by *their* contraction, shut the placenta up in a cell or cavity, which is the upper cavity of the before-mentioned hour-glass. I have never seen an hourglass contraction without adherence of the after-birth; and I take it for granted, that, as soon as an hour-glass contraction is discovered, there is also the indication to deliver, there being no reasonable hope that a spontaneous delivery will ever take place. I freely, therefore, advise the reader to deliver at once in all cases where an hour-glass contraction can be clearly made out. The operation which may be performed so as to give no great pain, requires explanation of the necessity for it, and assurances of great carefulness and tenderness in the performance. Half the hand should be insinuated into the ostium vaginæ as far as the thumb, which, being next buried in the palm, permits us to get the whole hand within the pelvis. From thence, either the whole hand, or half the hand, or sometimes the index finger alone, may be made to enter the cavity of the womb to detach and seize upon the placenta, which, when fairly severed of its unnatural connection to the uterine wall, may be removed by the hand, or left to be expelled by the contractility of the organ. It is a safe and proper conduct, however, to bring it away in withdrawing the hand, so as to let the uterus contract as much and as soon as possible.

A placenta may weigh from a pound to a pound and a half. Let the Student reflect that such a mass, if within the uterine cavity, must distend it considerably; and if he cannot touch it by passing the

finger up to the os tincae, the fundus of the womb must, of course, be high up within the abdomen. Therefore, in any case of retained placenta, he will find the fundus fully as high up as the navel. It will require, then, in order to get it, that the *hand* should be introduced: the finger cannot reach far enough.

From the dilated state of the vulva and vagina, after delivery, no difficulty stands in the way of the introduction of the hand into those parts. As it passes up, it is guided by the forefinger, which glides along the cord, while that is tightened by the other hand. The accoucheur must expect to find instances in which the os and cervix uteri actually gripe the cord; so that he is necessitated to introduce only one finger at first, then a second, and a third, which gradually conquer the resistance of the circular fibres of the os and cervix uteri, so as to make way for the whole hand, which at length is found to have entered into the cavity of the womb. But the pressure required in this operation has put the vagina, even the womb itself, on the stretch; so that were he not to resist its rise by pressing the abdomen with the other hand, the fundus would be pushed up to the scrobiculus cordis, and his arm pass inwards as far as the elbow. He ought not to allow any help, but with his *own* left hand on the fundus, force the womb downwards, towards his right hand. Let the operator always stop the womb from rising, by counteracting it with one hand placed over the top of the fundus to push it downwards towards the hand which is within.

When the last portions of the child quit the uterine cavity, expelled by the muscles of the organ, it generally happens that the placenta is completely detached from the uterine wall by that same contraction. This, however, is far from being always the case. When the womb fails to displace the placenta by force of the last expulsive effort, it does not follow that we are to expect an hour-glass contraction. On the contrary, the hour-glass is a rare event, while the continued normal adherence, total or partial, is a common one, a partial being more common than a total adherence. Yet it is probably true that an hour-glass would ultimately shut the placenta in its upper cell, in all cases where the placenta should fail to quit the surface after a few contractions. If, in such a case, there be no flooding or other symptoms indicating our intervention, we ought to wait for one hour at least. It is not wise to wait longer, and my multiplied experiences teach me that it is not rash then to proceed to the delivery of the secundines.

The cord furnishes a most convenient means of pulling out the placenta, which should never be used for that purpose without careful

reflection on all the circumstances. If the after-birth is still attached, and the uterus firm, to pull at the cord is to endanger the breaking it off even with the surface, which is an embarrassing and rather disgraceful accident; but if the womb be not firmly contracted, it might be so flaccid as to be turned inside out, like a wet bladder. I have seen a womb that was turned inside out by a midwife in this way, a case of great interest, that will form the subject of a future page. To any individual who has seen one at full term, nothing would seem easier than to invert a relaxed uterus. Wherefore, no man of discretion ought to draw by the umbilical cord, without having first ascertained that the womb is well contracted; and even then, the force he may venture to employ by its means is an exceedingly limited one.

**Womb after Delivery.**—When the placenta is delivered a hand should be placed on the patient's hypogastrium, for the purpose of ascertaining whether the uterine globe is firm. If one forgets to do this, he will incur the hazard of leaving his patient with an inverted womb. This lately happened here to a friend of mine, who did not discover the accident until five weeks after the event. The woman suffered the greatest distress, and the greatest weakness from loss of blood, but recovered at last.

The uterus ought, to feel through the integuments, about as large as the fist; but there is great diversity in regard to the magnitude of the organ immediately subsequent to delivery. The smaller it is, the better for the patient, who, with a well contracted uterine globe, may be pronounced beyond the reach of danger from effusions of blood; In feeling for the globe of the womb, whether before or after the delivery of the placenta, we should always endeavor to ascertain that the fundus has not fallen in, making a deep concavity like that in the bottom of a junk bottle; such an indentation is the first beginnings of inversion of the womb, and it may readily be detected where the belly is loose, thin, and flabby. If, in any case, such an indentation should be discovered, the rule of practice ought to be to introduce the hand and take the placenta bodily away, or pushing the incipient inversion of the fundus back to its place, forbid the woman to make even the least expulsive effort. After the extraction of the after-birth, great care should be invariably used to make sure that the proper pyriform shape of the organ is preserved.

**After-pains.**—The pains which women suffer, whether before or after delivery, depend upon one and the same cause, namely, the muscular action of the womb. The organ, after delivery, grows alter-



nately small and large for some hours; expanding to double the size of the fist when the pains are off, and reducing itself to the smallest size when they return. Every interval, or period of expansion, permits a small quantity of blood to accumulate in the cavity, which is forced out by the returning pains. The woman feels the gush of warm fluid issuing from the vulva, and is apt to say that she is flooding or flowing. An inspection of the countenance and an examination of the pulse are perhaps sufficient to indicate the course of the practitioner. If the face is not pale, and the pulse not weak or small, he will feel sure she is not bleeding too freely; but if they indicate the existence of too considerable a discharge, the amount of it ought to be ascertained with precision. There are few nurses who are competent to decide upon the case; as whether it amounts to what might be denominated hemorrhage or not. I was called in haste to attend a woman whom I found just delivered of a child; I received the after-birth, which came off spontaneously, and observed that the sanguine discharge was very great, but the woman, although feeble, was not sunken. The uterus contracted well, and I left her in a comfortable and usual state. In about two hours I was summoned again, and found her very faint, with extremely feeble, slow pulse. Placing one hand upon the hypogastrium, I found the womb not dilated, and then inquired of the nurse as to the amount of the lochia. She assured me that it was not greater than it should be. She had examined carefully into the circumstances, and found all right. Distrusting her account, I determined to learn for myself whether a large effusion had taken place, and found an immense quantity of coagula lying upon the bed, which the nurse had either not seen at all, or disregarded. This case, which many years ago caused me great trouble and anxiety, has influenced me ever since, and now I always feel unwilling to take information at second hand upon the important subject of profuse uterine discharges. I think it the duty of the Student early to resolve to learn accurately whatever may have an injurious or dangerous tendency for the patient committed to his charge. It may be stated as an axiom in obstetrics, which has almost no exception, that a well-contracted uterus cannot bleed; and all obstetricians habitually feel secure when they find the organ hard and small. Nevertheless, the state of contraction may speedily be followed by so absolute a relaxation of the contractile fibres of the uterus, that the gentlest infusion of blood into its cavity shall distend it again, if that fluid be prevented from escaping at the os tincæ or at the vulva;—but if a coagulum should fill the vagina, or stop the mouth of the womb; or if the napkin should be too strictly pressed

against the genital fissure, preventing the escape of fluid therefrom, the blood which flows into the womb will gradually distend it to that degree, that without losing a spoonful externally, the woman may effuse enough blood into the uterine cavity to expand it so as to cause fatal syncope.

CASE.—I was called, about three years ago, into the country, to assist a practitioner in a difficult labor. When I arrived, the child had just been delivered with forceps. The placenta was adherent. After waiting some time for its spontaneous extrusion, I removed it, and the womb contracted well. In the course of half an hour, my attention was attracted by a sort of gurgling sound from the bed, which caused me to draw near the woman, whom I found already quite fainted away when I approached her. She was very pale, and the pulse could not be felt at the wrist. The discharge was inconsiderable; but on placing the hand on the hypogastrium, the womb was found enormously distended, and full of blood. Two fingers were now carried into the os uteri, which was completely tamponed with a very firm clot. This I broke up and brought away, when out rushed a large quantity of grumes, mixed with fluid blood, whereupon the womb returned to its proper dimensions. She had no return of the symptoms. I could cite many examples from my case-book, of violent hemorrhages, both concealed and open, which have fallen under my notice in females where the uterus had contracted perfectly well after the delivery of the placenta. One case is so remarkable that I cannot resist the inclination to publish it here.

CASE.—Mrs. S. was delivered of her first child after an easy labor. She had a very good getting up, and on the fifteenth day walked down stairs. Some words of an unpleasant character passed between her and her husband. She became violently excited with anger; then burst into tears, and ran up stairs, where she threw herself on the bed. She was shortly afterwards found in an apparently dying state. When I reached the house, there was no pulse—great coldness, and the greatest degree of paleness. I found the womb filled with blood, and reaching above the umbilicus. Dr. Dewees was so kind as to visit this patient with me, and assist me with his valuable counsel. She recovered, but suffered a long time under the symptoms produced by this excessive sanguine discharge. This case will show the Student that even where the uterus has contracted so much as to sink down below the superior strait, it may be afterwards enormously distended by influent blood; and the reflection arising from it, though an un-



pleasant one, is a very just one, that, even where we succeed in getting a good contraction, we can have no sense of absolute security against concealed or open hemorrhage, in a patient whom we may have put to bed ever so comfortable or apparently safe: it is our duty always to remain within call for at least one hour after the delivery. If a whole hour passes without any such accident we may feel quite at liberty to go away. I advise every student to mark and observe this as a rule of conduct.

The influence of position in determining the momentum of blood in the vessels is well known to the profession; but there are few cases wherein it is of more consequence to pay a profound regard to this influence, than in parturient women. A uterus may be a good deal relaxed or atonic, and yet not bleed if the woman lie still, with the head low; whereas, upon sitting up suddenly, such is the rush of blood down the column of the aorta, the iliacs, the hypogastries, and the uterine and spermatic arteries, that the resistance afforded by a feeble contraction is instantly overthrown, and volumes of blood escape into the womb and vagina with almost unrestrained impetuosity. The vessels of the brain under such circumstances become rapidly drained, and the patient falls back in a state of syncope, which now and then proves immediately fatal. I may be excused for stating here that I have never met with but one of these sudden and fatal hemorrhages in my own practice. It is, perhaps, due to the special attention I have always considered it a duty to pay to this point, that I have hitherto avoided so serious a misfortune. Surely, I have, in a multitude of persons, by a prompt attention to the state of the womb, put aside the stroke of death by proceeding without delay to empty the organ by turning out with my fingers the masses of coagula with which it was filled. If you leave your patient soon after her deliverance, and are hastily recalled to see her with an announcement perhaps that she is dying, your first duty on reaching her bedside is to examine the hypogaster to ascertain if the uterus be firmly contracted or not, and, if you find that the uterine globe is not too large, too much distended or expanded, then do not rest satisfied until by a vaginal examination you shall have learned that there is or is not a clot-tampon in the vagina.

CASE.—In conversation with my late venerable friend Professor James, upon this very subject, he informed me that he delivered a lady a few years before, after an easy natural labor. The uterus contracted well, and all things seemed as favorable as possible. As the accouchement took place early in the morning, he was, subsequent to the event, invited to breakfast down stairs, whither he proceeded, after

having given strict caution to the lady on the subject of getting up. While the persons at breakfast were conversing cheerfully, and exchanging felicitations upon the fortunate issue of affairs in the lying-in room, the nurse was heard screaming from the top of the stairs, "Doctor, doctor, for God's sake come up!" He hastened to the apartment, and the lady was lying across the bed quite dead. It was found that, soon after the doctor went below, the lady said to the nurse, "I want to get up." "But you must not get up, madam; the doctor gave a very strict charge against it," replied the nurse. "I do not care what the doctor says," rejoined the patient; and thereupon arose, and throwing her feet out of the bed, she sat on the side a few moments, reeled, and fell back in a fatal fainting fit. The remarks of Dr. James, as he related the occurrence to me, made upon my mind a deep impression of the vast consequence of careful and well-timed instruction of the nurses; who, if they could have the dangers of mismanagement fully exposed to them, would surely avoid some accidents that every now and then are attended with shocking results.

Though large discharges are not apt to occur when the womb has once contracted pretty firmly—there are precautions which ought always to be observed: for example:—

CASE.—I left a woman half an hour after the birth of her child. She was as well as could be desired. I gave the usual directions. In a short time her husband came running to me, in the street, where he met me, and said his wife was dying. Upon hastening to his house, I found her, in fact, pulseless, pale, and completely delirious, with a constant muttering of incoherent phrases. Upon inquiry, the following occurrences were found to have taken place. She felt some desire to pass the urine. The nurse told her to get up. "But the doctor says I must not get up." "Oh, never mind what the doctor says; it won't hurt you; get up." A chamber-pot was placed in the bed, and Mrs. F. was lifted upon it, in a sitting posture. She fainted in the woman's arms, was held up a short while, and when laid down, the vessel was discovered to be half full of blood. She had nearly died; and did suffer long and severely in consequence of this imprudent disregard of orders. When I left her, the uterus was well contracted; but the change of momentum in the arterial columns produced the hemorrhage, than which I have scarcely seen one more dangerous.

CASE.—It is of the highest consequence to secure a firm contraction of the womb after delivery, in all those women who have before suffered severely from flooding soon after the birth of the child. A

lady in three successive labors, of which the first occurred on the 30th of December, 1819, and the last on the 28th of September, 1824, which were rapid and easy, was brought almost to the gates of death by enormous discharges, which commenced about five minutes after the birth of the foetus. I saw her lie pulseless, and as near as possible to dissolution in those labors. In two subsequent confinements, she took one scruple of ergot, just as the foetal head began to emerge. This was given to her, not for the purpose of aiding in the expulsion of the child, or placenta, which had never occasioned any embarrassment in antecedent labors; but to save her from those dangerous losses, by constringing the womb permanently; and I am pleased to say that, in both instances, she experienced none beyond the ordinary amount of effusion. I could cite numerous examples of similar results. I scarcely ever omit such a precaution for any patient, of whom I am informed that she floods after delivery.

**Sitting up too Soon.**—As regards the danger of sitting up soon after delivery, there are some important suggestions for the Student that ought not to be here omitted.

Certain women are met with who pass through the conflict of parturition unscathed, and who are quite as competent to the performance of their daily toil on the following day as the Chief's wife who so much excited the astonishment of Hearne on his Northern Journey. I have found that many of my patients, and some in the class of what are called the "upper ten thousand," were completely destitute of all symptoms of indisposition as the palest Potawattomie or Ottawa woman. Such people might get up; and I have seen very elegant women get up and "be about" on the third day without pretence of after indisposition. Still, it is a safe rule to advise the keeping of the bed for many days, since to leave the bed is to go forth *à la chasse* for some malady. Hemorrhages, chill, prolapsions, and an evil train attend those imprudent women who leave the lying-in couch too early. A rest of nine days is a short rest after nine months of fatigue crowned by the exhausting conflict of a labor.

It is well known that the coagulability of the blood becomes greater in proportion as any hemorrhage progresses—therefore a woman who has lost during her labor forty or eighty ounces of blood has the rest of it more coagulable than it was before the flooding commenced. *Again*, fainting consists in the too little intensity of the pressure of the blood, in the brain capillaries—it is encephalic anæmia—and a woman just gone through a flooding, experiences a sensation of faintness from lessened vascular tension of her encephalon. If she suddenly assume

an erect position, the tension becomes *instantly* much lessened in consequence of the gravitation of the blood. But—and this is the danger—if she faint badly while her blood is become thin and highly coagulable from hemorrhage—the scarcely moving current nearly stops in the heart, and when she comes out of the deliquium, if ever, she sometimes does so with a clot in the auricle and ventricle—she has got a false polypus in the heart—and she will surely die.

**Heart-Clot.**—Many women have died soon, almost immediately after giving birth to the child, or speedily after the delivery of the placenta. Some of them have perished suddenly upon rising up in bed, within a day or two, or more, after a labor attended with hemorrhage, from which, however, they were then so far recovered as to give no apparent cause for anxiety about them.

It used to be considered as an unaccountable circumstance, that some women should suddenly expire, either soon after the birth of the child, or not long after the delivery of the secundines, or within a few days subsequent to their being layed. I had noticed, on various occasions, the total want of any means of explaining such disasters, and remained as much in the dark as my compeers, until I discovered that the incident depends, most commonly, on the sudden coagulation of the blood that occupies, for the time, the right auricle of the heart, and, in some of the cases, even that which is in the ventricle and the pulmonary artery. A person who should suddenly have these cavities filled with a strong, firm clot, could hardly be expected to survive the accident, and would perish with symptoms of asphyxia; for, to choke up the way of the blood, either in the heart or in the pulmonary artery, would have nearly the same effect on the life, and give rise to nearly the same symptoms as would attend a ligation of the vena cava or the arteria pulmonalis.

My first publication on this subject, and which I consider to have made the rationale extensively known in the United States, appeared in the *Medical Examiner*, No. 51, for March, 1849, now seven years ago. Since that time, I have both seen and heard much of this sudden heart-clot, so that my views having been confirmed by my own observation and that of other physicians, I shall seize the present occasion to explain them to the student.

As the life of the blood is intimately connected with that of the vessels in which it circulates, it is reasonable to infer that the health and vitality of the former should bear a certain ratio to those of the latter.

It is beyond cavil, that the blood of an animal slowly bled to death



becomes more and more coagulable as the hemorrhage proceeds, and that the last ounce that is extravasated will coagulate in a shorter time than the first ounce would. Hence, the coagulability of the blood remaining in the vessels after profuse hemorrhage is considerably augmented, and sometimes to so great a degree, that care is to be taken to avoid bringing on a fainting fit, which increases the already dangerous tendency to heart-clot.

Copious hemorrhages produce weakness not of the blood only, but of all the organisms, whose forces, indeed, depend on the crasis of the blood, forces which are lessened by the blood's weakness, while its strength is equally dependent on the living solids it inhabits. The blood is weak when the vessels are weak, strong when they are in tone, and dying when they are likewise dying. It draws its life from the living solid of the endangium, which is the only tissue to which it has any relation of contact. To withhold from the blood this vascular life-force, is to cause the blood to die by coagulation; for when the nervous mass no longer influences the blood through its endangium, it must die—its coagulation is its death.

If a woman loses, by flooding, a very great quantity of blood, the vessels soon become as full as they were previous to the accident, but the blood has become hydræmical or watery, and incapable of taking up in the lungs, and delivering over to the body, a suitable sum of oxygen. Hence the propensity to faint after hemorrhages; and hence the danger of rising up from a recumbent position. If the patient have become ever so hydræmical, and yet keep the head low, she will hardly faint, for, while she is down, the encephalon contains its full proportion of the watery blood, which, poor though it be, is still equal to the wants of the economy, if the woman but keeps her head as low, or lower than the trunk. But if she rises up and sits, or stands on the feet, then the encephalon becomes anæmical, and the lessened tension of the brain allows her to fall down in a fainting fit.

In an ordinary state of health, a fainting fit may be brought on by various causes, as mental emotion, a sudden nausea, &c., and it is not a dangerous incident, because the blood is strong, and speedily restores the suspended innervations. But where the blood is so weak that it is necessary to keep the head as low as the trunk to avoid fainting, it is very dangerous to faint badly, because the blood, already excessively reduced in strength, and prone to coagulation, is likely to become concrete if it but come to a stop in the auricle.

Let a woman, who has lost by flooding, say 150 ounces, bring on a bad fainting, by sitting or standing up, and she will seem quite exanimate. All motion of the muscles is suspended. It is a question

whether she is breathing or no, and the pulses of the heart have almost ceased, while the radial artery has wholly ceased to beat. If now, this dangerously coagulable blood continues to ooze rather than flow into the right ventricle to slowly fill it, lingering as if doubtful whether to move or rest, it may die there, in the heart, because the heart being scarcely alive and most of the vessels quite still, they are without nervous force to be inducted into the blood. The blood dies in the heart's auricle by coagulating there, just as it would in a cup or vase. If the woman in such a state should now be aroused by any means, the heart will recommence its pulsatory motion but can not expel the clot that has been moulded by its cavity. The auricle, the ventricle and the pulmonary artery, filled with an immovable coagulum, which stops off the pulmonic circulation, causes the woman to experience what is called want of breath. She breathes, indeed, and breathes violently, with greater and still greater effort, but can get no oxygen out of the circumambient air, because the lesser circulation is cut off by the clot, which acts as effectually as any ligature, and she must die.

There is not, in the whole field of medical experience, a more pitiable sight than that presented by some of these heart-clot cases. The distress is truly inexpressible, and the gestures as well as the voice are fit to melt a heart of adamant. Those are to be esteemed the most fortunate in whom the clot, when it does come, is so great and strong as to preclude the possibility of any further movement of the heart, for such persons die on the spot; but in such as form a smaller clot, the efforts of the heart to dislodge or expel it from its cavities are terrible indeed; small quantities of blood only can be poured into the auricle, and pass onwards between the clot and the walls, into the pulmonary circulation. The diaphragm redoubles its exertion to pour over the scanty rill a copious flood of oxygen, which the hydræmical stream can no longer take up and carry forwards, so that the tissues and the whole brain and cord are left in fatal destitution of the life-giving reagent.

Should an instance occur so threatening as to lead to the greatest apprehensions of a fatal result, it may be still possible, by wise precautions, to indulge hopes of a recovery; which will depend upon the size of the clot formed during the state of fainting. A clot that should quite fill the whole cavities must preclude the possibility of any recovery; whereas, a smaller one would not prevent the blood of the cavæ from entering into, and being expelled from the heart, but with difficulty and imperfection depending on the magnitude of the clot. In the case of the Princess Charlotte, whose death within a few hours after the birth of the child cast a deep gloom over the whole British

empire, there is reason to believe that a clot in the heart brought her existence to an almost instant close. We have a clear relation of the circumstances attending that deplorable occurrence in a letter from one of the physicians who was summoned to Osborne House at the time of her lying-in; and I shall make use of the present opportunity to lay it before the Student, that he may consider whether or no her death should be accounted for by the supposition of a sudden heart-clot. Dr. Sims's letter to the late Dr. Joseph Clarke, of Dublin, was originally printed in a *Short Sketch of Dr. Clarke's Life*, by his son-in-law, Dr. Robert Collins, Master of the Dublin Lying-in Hospital, and author of an important work on Midwifery. Dr. Collins says it is the only authentic account of the case that has been published. I copy the letter from Dr. Collins' short sketch, &c. The letter is as follows:—

LONDON, November 15, 1817.

"MY DEAR SIR: I do not wonder at your wishing to have a correct statement of the labor of Her Royal Highness, Princess Charlotte, the fatal issue of which has involved the whole nation in distress. You must excuse my being very concise, as I have been and am very much hurried. I take the opportunity of writing this in a lying-in chamber.

"Her Royal Highness's labor commenced by the discharge of the liquor amnii about 7 o'clock on Monday evening, and pains followed soon after; they continued through the night and a great part of the next day, sharp, short, but very ineffectual. Towards the evening, Sir Richard Croft began to suspect that the labor might not terminate without artificial assistance, and a message was dispatched for me. I arrived at 2 on Wednesday morning. The labor was now advancing more favorably, and both Dr. Baillie and myself concurred in the opinion that it would not be advisable to inform Her Royal Highness of my arrival. From this time to the end of the labor, the progress was uniform, though very slow, the patient in good spirits, pulse calm, and there never was room to entertain a question about the use of instruments. About six in the afternoon, the discharges became of a green color, which led to a suspicion that the child might be dead; still, the giving assistance was quite out of the question, as the pains now became more effectual, and the labor proceeded regularly, though slowly. The child was born, without artificial assistance, at 9 o'clock in the evening. Attempts were for a good while made to reanimate it by inflating the lungs, friction, hot bath, &c., but without effect; the heart could not be made to beat even once. Soon after the delivery, Sir Richard Croft discovered that the uterus was contracted in the

middle, in the hour-glass form, and, as some hemorrhage commenced, it was agreed that the placenta should be brought away by introducing the hand. This was done about half an hour after the delivery of the child, with more ease and less loss of blood than usual. Her Royal Highness continued well for about two hours; she then complained of being sick at stomach, and of noise in her ears; began to be talkative, and her pulse became frequent, but I understand she was very quiet after this, and her pulse calm. About half-past 12 o'clock, she complained of severe pain at her chest, became extremely restless, with a rapid, irregular, and weak pulse. At this time I saw her for the first time, and saw immediately that she must die. It has been said we were all gone to bed, but that is not a fact. Dr. Croft did not leave the room, Dr. Baillie retired about eleven, and I went to my bedchamber and laid down in my clothes at twelve. By dissection, some bloody fluid (two ounces) was found in the pericardium, supposed to be thrown out in *articulo mortis*. The brain and other organs all sound except the right ovary, which was distended into a cyst, the size of a hen's egg; the hour-glass contraction of the uterus still visible; a considerable quantity of blood in the cavity of the uterus; but those present differ about the quantity, so much as from 12 ounces to a pound and a half; the uterus extending as high as the navel. The cause of Her Royal Highness's death is certainly somewhat obscure; the symptoms were such as attend death from hemorrhage, but the loss of blood did not appear to be sufficient to account for a fatal issue. It is possible that the effusion into the pericardium took place earlier than what was supposed, and it does not seem to me to be quite certain that this might not be the cause. As far as I can judge, the labor could not have been better managed. That I did not see Her Royal Highness more early was awkward; and it would have been better that I should have been introduced before the labor was expected; and it should have been understood that, when the labor came on, I should be sent to, without waiting to know whether a consultation was necessary or not. I thought so at the time, but I could not propose such an arrangement to Croft. But this is entirely *entre nous*.

"I am glad to hear that your son is well, and, with all my family, wish to be remembered to him; we were happy to hear that he was agreeably married.

"I remain, my dear Doctor,

"Ever yours, most truly,

"JNO. SIMS.

"P. S. This letter is confidential, as, perhaps, I might be blamed for writing any particulars without the permission of Prince Leopold."



I believe that few persons die with scarlet-fever, or smallpox, or consumption, who are not hurried to the grave by means of coagula formed in the heart, late in the progress of the cases, in consequence of the debilitation or lessening of that inducted-life that passes from the vessel to the living blood. I have many times, in the closing scenes of pulmonary consumption, and other lingering, and some acute maladies, perceived, from the *running* and fluttering pulse, and the augmented respiratory distress, that the last fatal blow was struck by the formation of a heart-clot of greater or less size.

But these coagulations, that ordinarily take place in the last days of lingering chronic disorders, are different from the sudden and blasting power of the same accident in our midwifery practice.

I cannot doubt that the lady whose case I have related as having been under Dr. James's care, must have died from the coagulation of the blood in her heart. A mere deliquium is recovered from very soon after the body is placed in a horizontal posture. I should think that a fainting fit could hardly prove fatal *per se*; but, if a heart-clot should be formed during the deliquium, it seems unlikely that the blood could again move in its circle. No examination was made of the dead body of Dr. James's patient. No one knew anything of sudden heart-clot. She did not die with hemorrhage. What was it that destroyed her life? what could have destroyed it so suddenly save a deliquium, during which the heart filled with a solid clot, that precluded the possibility of re-establishing the circulation, the oxygenation, and the innervation of the unfortunate lady?

Bichat has taught us the important truth, that man cannot die save by the cessation of life or power in the lungs, or in the heart, or in the brain. By lungs, he means oxygenation of the living mass. By heart, he means the sanguine circulation; and by brain, he means the nervous mass, particularly the nervous mass of the medulla oblongata, in which essentially resides the innervative force of the respiration, and so, the oxygenating force. Man must, therefore, die by the brain, the heart, or the lungs. It is to the last degree improbable that Dr. James's patient died *solely* because her brain ceased to evolve nervous force; but, if it did not wholly cease to do so, it must have continued to be the cause of some motion, everywhere within. But if, as I suppose, the heart became instantly filled with an immovable clot, so that it could no longer receive nor discharge any blood, the nervous mass would die as soon as the last remaining atoms of oxygen in its capillaries should have become exhausted: for the function of the capillaries is to take the oxygen out of the blood which is thus converted into venous or black blood. Dr. James's patient died by the heart, as do

all those who have the misfortune to form a heart-clot of considerable size.

I have had the unhappiness to witness several fatal terminations of puerperal eclampsia. In the paroxysms of this sort of convulsion, the patient's face ordinarily grows darker and darker, and the tongue and lips blacker and blacker, as the paroxysm goes on, until the pulse almost ceases to be felt; the respiration becomes nearly suspended, and at last the patient lies still. This scene, at the greatest height of the struggle betwixt life and death, is one of almost complete asphyxiation; the innervations have become so reduced that the physician is led to look with an anxious eye to see whether or not life has become wholly extinct.

If death does not supervene, there comes a slow recuperation of the forces. Now, if the patient rises upon her elbow, or attempts to escape from the bed (and it is sometimes very difficult to hold her down); if she stares wildly about her and breathes with difficulty or violence, she will surely die; and that, because, during the extremest intensity of the late asphyxiation, a soft clot has filled the right auricle, ventricle, and pulmonary artery. I have not seen such a patient, so struggling and so breathing, escape from the fatal termination. Indeed, it would be difficult, *à priori*, to imagine a condition more likely to lead to the heart-clot than that of a woman in a violent eclampsia, especially if an unmeasured use of venesection should have been employed.

CASE.—A lady was confined, and with a natural labor, giving birth to a healthy child at term. She had lost a good deal of blood with the expulsion of the placenta, which left her weak and pallid. The physician directed her to be kept quiet, so that she had a good day and following night. On the following morning the physician found her in all respects as well as could be wished. Very soon after he had withdrawn from her chamber, she became alarmingly ill and he was sent for, and returned, having been absent about one hour. The pulse was now extremely frequent, weak, and small, and it continued so until her death, which took place on the 18th or 19th day. It was upon the 18th day that I was invited to the consultation, and at once formed the opinion that she had a heart-clot, as the cause of all her dreadful symptoms, and which acting as a tampon of the heart, deranged the circulation, respiration, and innervations of the dying lady. After her decease, which occurred the next morning, a white, fibrinous coagulum was found in the right auricle, nearly filling it and projecting through the tricuspid valve into the right ventricle; the tail of the clot was whipped into cords by the threshing action of the chordæ tendineæ of the

ventricle. The pleura of the right cavity contained a large quantity of serum.

When the physician left his patient's chamber on the morning of the attack, she was well enough; when he returned, after an absence of only one hour, he found her alarmingly ill. She had lost blood in the labor. He had no sooner gone than the nurse took her up, and sat her upon a vessel in bed to pass the urine. She fainted; the blood coagulated in her heart. She did not die outright, but carried on an imperfect circulation outside of the clot, and betwixt it and the walls of the heart. The red matter of the blood was gradually squeezed out from the clot and hurried into the pulmonary artery, together with numerous fragments of the remaining mass of immovable fibrine. Such concrete elements of the blood could not possibly pass through the pulmonic capillaries; whence there arose pulmonary obstructions, pneumonia, pleuritis, and hydrothorax, as the last consequences of the heart-clot. So that she died about the 19th day.

Towards the end of the year 1848, a primipara gave birth to her child. She was a tall, slender, and very delicate woman. The placenta was not removed. She lost a good deal of blood; probably a large quantity. Between forty and fifty hours after the birth of the child, I was called in, and removed the placenta from the grasp of the cervix, which alone detained it. It was so putrid that the stench of it could not be removed from my hand, by any means that I could employ, for full twenty-four hours. She was pale, and her pulse was somewhat frequent, but not enough so to annoy me. The next day I found her *comfortable*; the milk had come, and she was doing well, though very pale. On the seventh day she was put into a chair and set before the fire. Immediately she fell sick, was put to bed very ill, and I being hastily called, told her friends that she had formed a heart-clot, because she had been imprudently taken out of bed, set up, and thus made to faint. In that fainting fit the blood lost the vital induction, and coagulated as it died. She died, as any woman may be expected to do who is so treated, under such circumstances of debility and exhaustion.

The state of fainting is one that I consider to be dependent always upon anæmia of the encephalon; for, whenever the vascular tension of the parts contained within the skull is suddenly and considerably diminished from what cause soever, faintness comes on, and the individual seeks for or falls into an horizontal posture, in order to restore the plenitude of the brain-capillaries. I can form no conception of a fainting fit occurring during the existence of an encephalic hyperæmia.

To raise a woman up, who within a few days past has sustained a great loss of blood, is almost inevitably to bring on a deliquium animi. Now, if the opinion be a sound one, and I believe that it is so, that precedent losses of blood increase the tendency of that fluid to coagulate, it follows that, to take a woman under such circumstances out of her bed, and make her sit up, is to expose her to the risk of forming a heart-clot that shall instantly manifest its presence by a wild feeling of suffocation and all the distressing manifestations of an insupportable asphyxia. Often, very often, such a heart-clot is immediately fatal—the patient dying as suddenly as if a grape-shot, instead of a clot, were lodged in one of the pulmonary auricles or ventricles.

Monthly nurses, and the ordinary companions of the sick, like the public at large, know nothing of these things; which yet are so plain and so undeniable, that at least every Student of Medicine ought to be concisely acquainted with them.

Let me recommend the perusal of the following interesting case to the Student. The facts as they occurred were intensely interesting to me—and I wish that I were possessed of some art of picture-writing by means of which to reproduce the scene before the mind of the reader; and that he might see it in all its force as I did at the time of its occurrence.

CASE.—A lady, the mother of four children, after having been considerably excited by certain circumstances in her domestic relations, was attacked with symptoms of labor in the afternoon. She sat all night in an arm-chair, and did not sleep even for a moment. At 5 A. M. she placed herself upon the bed, and the child was born in half an hour. The placenta came off well, and nothing was left in the womb, which was found firmly condensed. In the course of an hour after this, she was seized with a copious hemorrhage. The vagina and womb contained large coagula that were turned out by the physician, upon which the hemorrhage ceased, and she was pretty well, although she had lost by estimate some thirty ounces. The accoucheur remained near his patient from half past six, when the hemorrhage ceased, until after 10 A. M., and then bade her good morning, and left her *very well*. At midday, and throughout the following night, she continued very well. At half past nine on the next morning, at his visit, he found her as well as could be wished, having no pain nor any appreciable indisposition save those symptoms appertaining to a healthy *accouchée*. The pulse was about 75; she was quite well.

The physician took his leave of her at 10 in the morning.

Being summoned to her, he came to her chamber again at 1 o'clock,



and found her apparently nigh unto death: the pulse 164, feeble and thread-like; the hands cold; but the respiration, repeated, with long intervals, seemed to depend solely on the exertion of the will. The respiratory acts were performed with great violence, and without rhythm; she had lost no more blood, and there was no coagulum either in the womb or vagina.

The physician—it was Dr. Yardley—requested me to visit with him, and I arrived at 3 P. M. She supposed herself to be moribund; and still breathing solely by her will, and without organic rhythm, asked me, a stranger, with words broken by the occasional forced aspirations, “Sir,—do you—think—I shall be—alive—in half an hour?”

It would be difficult to conceive of a greater physical distress than that which was now endured by the dying lady. Every respiratory act was attended with an agonized sense, and with pain at the end of the sternum, as in angina pectoris. I auscultated the heart and the lungs, and sought by percussion to discover the state of the lungs and pericardium. I could detect nothing to explain the curious phenomena. I examined the abdomen, and employed the Touch to explore the pelvis. I was informed that she sat up in bed to make water, soon after the Doctor had left her at 10 o'clock, and that she was immediately thereupon seized with this illness. At once, I perceived that the deliquium had allowed a clot to form in the heart, and that it must prove as fatal as it would if it were a bullet instead of a coagulum lodged there. Indeed, I could not come to any other conclusion, for I said, at 10 o'clock she had 75 pulsations, at 1 o'clock, 165 pulsations. There is no pathological principle could bring about so sudden and great a change in the pulse, the respiration, and temperature, except some mechanical obstruction, such as a clot or tampon filling up the heart.

Such a clot, occupying the auricle, ventricle, and pulmonary artery, can never be taken away. Its influence on the circulation is equal to that which would be exerted by ligation of the cava, leaving only a small aperture for the transmission of a very little blood to the lungs. This lady is not dead already, because she still urges a very little blood onwards to the lungs, and which finds its way betwixt the coagulum and the walls of the heart. But the quantity thus propelled is insufficient to take up an amount of oxygen equal to the demands of the nervous system, and hence, she makes these violent and voluntary efforts to breathe and to obviate the asphyxiation. Her *instinct*, not her knowledge, teaches her that the more perfectly she can oxygenate, even the small stream that still remains to her, the less will she per-

ceive the sensations arising from her cyanosis, or approaching complete state of asphyxia.

I thought it might be possible to restore the organic rhythm of her respiration, at least for a short time; and that, if that could be done, she would be greatly comforted by it. Hence, I stood before her and asked her to look at me, and exactly imitate the acts of respiration I was about to perform before her.

Accordingly, she fixed her eyes upon me, while I, by a forced aspiration, inhaled perhaps 150 cube-inches of air, which she did in like manner; I then repeated the aspiration, which she also did for more than a minute, when I ceased; she now breathed with rhythm, and without the intervention of her will; in short, she was greatly comforted, and had not from that time until her death any more of the purely voluntary respirations that constituted the most shocking spectacle of the whole scene of her sufferings.

Let the Student consider what must be the result of such a mechanical obstruction in the heart, as this I have here supposed. The systemic auricle and ventricle and the aorta are unaffected, at least directly; nothing prevents the easy outflowing of their blood; nothing prevents the circulation from flowing in on the coeliac and the mesenteric arteries; but the capillaries in which they terminate can no longer deliver over all the blood they receive, because the clot in the heart is equivalent to a ligation of the inferior cava. It is to be expected, therefore, if the patient should survive for a few hours or days, that the aqueous elements of the blood must largely escape, by exosmose or otherwise, from the mesenteric and intestinal capillaries, and fill the peritoneum with water. In one of the cases I have herein related, the pleura was filled, because, I suppose, the minute fragments of the concreted blood had been driven into the lung capillaries, and so caused the hydrothorax through a pulmonary obstruction. Here, when the fibrinous clot was unbroken, the effusion fell into the peritoneal sac; and the clot must have acted as a complete tampon, since not only were the right pulmonic cavities quite full, but the clot also extended far within the pulmonary artery itself. Twenty-four hours after her death, which took place some thirty hours subsequent to the occurrence of the accident, I found both the right auricle and ventricle, as well as the pulmonary artery, filled with a whitish-yellow, chicken-fat colored coagulum. One might well feel surprised to find that such an obstruction should not have proved instantly fatal. Let the Student here observe that the clot was not one of those dark euthanasial coagula, that are commonly met with in the heart, when examined after death from ordinary causes. Had it been even a firm but dark

clot, I should have concluded that it was formed during the moribund state of the subject. On the contrary, whenever the clot consists chiefly of the fibrinous portion, and is of a yellowish, chicken-fat hue, it must be assumed to have been formed a considerable time before the death struggle of the patient. Its whitish-yellow tint proves that the red matter had been long before completely pressed out of and separated from the fibrine. These coagula have been called false polypi of the heart.

I have had so considerable an experience in these matters, that I could relate, in this place, many other instances of persons in whom heart-clot was suddenly formed, but I must abstain for want of space from such remarks in the present volume. Besides, I am content with having, in the foregoing, called the attention and excited the reflection of the Student, as to the case, and with having put him upon his guard against the most real and perhaps only danger connected with deliquium animi. After having read these remarks, I venture to hope that, in all cases of dangerous uterine or other hemorrhage, he will not be so blind to the circumstances, as to allow his patient to be taken out of the horizontal posture, until he shall have become well assured that a deliquium animi cannot come on to arrest the movement of the blood in the pulmonic heart, so as fatally and instantly to fill the cavities with this heart-clot. Several authors have spoken of heart-clot; but I am not aware that any one has heretofore set the case in such a light as that in which I have attempted to place it. There is a very clever *resumé* of the subject now before me in a pamphlet which was an inaugural dissertation *de Polypis Cordis*, &c. &c., presented at Halle in 1821, by Dr. John Valentine Deegen, of Croppenstadt, near Halberstadt.

**Tampon Never.**—I repeat the opinion already expressed, that the blood that issues from the placental surface of the womb after delivery at Term, ought to be permitted to flow freely out from the vagina. After it is effused, it is of no use to the woman. What is the reason that a woman does not bleed to death after the placenta is detached? It is not because a coagulum is formed, by which the effusion is arrested. She is saved by the condensation of the uterine tissue which, by its coacervation, is not only sufficiently diminished in volume to close the small orifices of the vessels on the placental surface, but even to close the largest sinuses that may be opened during the Cæsarean section, or in extensive lacerations of the womb. I saw, in a Cæsarean operation, the scalpel open the uterus immediately over the placenta—an incision large enough to permit me to extract the

child with sufficient facility. The cut was, of course, through the most vascular part of the organ. I need not say, that the blood bubbled up from the incised surfaces very rapidly; but it wholly ceased to flow as soon as the placenta was removed from the womb, so as to permit that organ to contract. The condensation of the womb, in contracting, shut up the cut vessels as completely as if ligatures had been applied to them. I repeat again, that a very firm clot, shutting the mouth of the womb, may serve as a tampon which shall wholly prevent the escape of blood from the cavity, which expands as it continues to receive the effusion, until the womb becomes fully as large as at the sixth month; and the larger the womb, the more capacious its vessels. Such clots should be broken up, and removed. They are as dangerous as, but not more so than the artificial tampon, when used after delivery at term. I have never used a tampon after delivery at term; but I have seen them used, which came very near causing the patient to sink, by detaining the effusion within the cavity. The principle is false, and the practice dangerous, which resorts to such a mode of arresting uterine hemorrhage, at term; he who resorts to it, does so under the ignorant presumption that uterine, like surgical, hemorrhage is to be arrested by coagulation of the outflowing blood. If it should be said here, that women very commonly do discharge utero-morphous clots after delivery, I admit the fact; but I insist that but for a sufficient degree of irritability in such uteri, the clots would become so large as to require for their formation a wasteful, and even dangerous or fatal extravasation of the vital fluid. Strong uteri never permit them; weaker ones allow pretty large ones to be formed, and very feeble wombs fill until the woman faints or dies.

**Turn out the Clot.**—I should feel happy if I could impress upon the mind of the Student, in such a manner as to make it ever present to him when the occasion demands, that the only certain mode of arresting uterine hemorrhage is to empty the womb and cause it to contract. If a woman have alarming discharges of blood before the delivery of the child, let him take away the child, if he can. If she bleed before the after-birth is withdrawn, let him withdraw it. If she bleed after delivery, let him introduce his fingers into the uterus and break to pieces the firm coagula that he will find in it, or in the vagina; and then by frictions of the hypogaster, or by cold, by pressure, by ergot, and by all the means in his power, let him compel the womb to contract; then, and not until then, will his patient be safe. He should always turn out the clot, if the patient is sickened by it.



The weakening effect of a sudden removal of pressure or support from the contents of the abdomen, is noticed not only in labors, but in tapping the abdomen for dropsy. It is always deemed necessary, in tapping very distended persons, to pass a broad roller round the abdomen, so as to constrict it in proportion as the water flows off. In cases of paracentesis, where this precaution is not observed, the patient is very apt to faint, and evidently from the same cause I have mentioned, namely, the want of pressure on the contained organs. I had occasion, more than two years ago, to verify this principle in a case. A young woman, excessively distended with ascites, was tapped; the water flowed off very rapidly; in proportion as it escaped, I tightened the bandage, and she made no complaint of faintness. In order to test the effect of relaxing it, I withdrew all pressure for a very short time, the water still flowing, and she immediately began to grow sick and faint; which symptoms ceased as soon as I renewed the pressure with the bandage. It is with the greatest confidence, both as to its necessity and efficacy, that I therefore recommend, that a bandage should be early placed around the abdomen of such patients as are prone to fainting after delivery, as the compression, all things being thus ready prepared, may be applied soon after the birth, and without disturbing the patient.

It is well worth the Student's while to bestow some sober thought upon the subject of the binder for a newly delivered woman. As a general precaution, it is doubtless a laudable one to bind up the weakened and exhausted abdominal region. But, it is questionable as to how long it should be used. Dr. White, of Manchester (*Treatise on the Management of Preg. and Lying-in Women*), says very properly, at p. 116, "Much mischief is often done by binding the belly too tight. If there be any occasion for support, a thin napkin pinned very slightly around the waist, is all that is absolutely necessary, and the sooner this is disused the better." Certainly after the first days of the confinement, it is not to be held necessary as a preventive of syncope or hemorrhage; nor has it any special usefulness beyond the doubtful one of restoring the woman's shape. But as to this, I think that Asdrubali is very correct in his assertion, that it cannot at all restore the figure, whose restoration depends upon the vital contraction of the muscular and other tissues that have been relaxed by the gestation. I fear that much of the too general complaint of prolapsus and retroversion of the womb among American women may be attributed to the use of bandages worn so tight, and so long, as to drive the recovering uterus to the bottom of the pelvis, or even overset it backwards into the hollow of the sacrum. Dr. A. F. Hohl,

*Lehrbuch der Geburtshülfe*, 8vo., Leipzig, 1855, says, at p. 1113, "The application of a binder for the abdomen, with a view to preserve the shape, to obviate the sense of emptiness in the belly, or to prevent fainting or flooding after delivery, we have by experience found to be unnecessary as long as the woman lies in bed."

**Diet.**—The diet of a woman recently delivered, ought to be very light, and of easy digestion. Tea, bread, gruel, vegetable jellies, and panada suffice, and are the safest materials during the three or four first days of the accouchement. Circumstances may demand a more liberal allowance; but for persons who have small lochial evacuations, or who are of an excitable constitution, the simplest elements of nutrition only should be prescribed. For a surgical patient, both before and after the completion of the operation, a regimen is deemed of vital importance; and yet the shock to the constitution, and the irritative influences of the wound, in severe or capital operations, being not greater than those developed by many instances of labor, are not dietetic precautions equally proper, then, in both cases? In addition to these considerations, it ought to be remembered that, during the months of gestation, the fluxional determinations have been towards the uterus; but now the wave of vital fluids is marching towards another set of organs, and great disturbances are, many times, occasioned by this mutation of directions. The effort of the constitution produces fever, which commences simultaneously with the irritation of the mammary glands; but, happily, when those glands are enabled to throw off an abundant secretion, the whole constitution is relieved by the evacuation, and the fever undergoes a crisis, as well marked as that of a bilious remittent, or any other febrile disorder that goes off by a profuse diaphoresis or diarrhoea. Let the body, then, be prepared for this fever, by a correct course of diet; and when that crisis has been completed, much of the hazard of an accouchement will be already over-passed, and a reasonable indulgence in stronger food becomes safe and proper.

**Suckling.**—The child should be put to the breast as soon as the mother has recovered sufficiently from her fatigue and exhaustion. This is a natural course—it is, therefore, the best one; for by the act of suckling, the new determinations, about to arise, are directed to, and restrained within their proper bounds: the vital wave ought to come hitherto, but no farther. Such a course is useful for the child, which generally procures, from the earliest lactation, some saline fluids that have a favorable influence on its digestive tube; and for which ought

not to be substituted that pernicious compound, molasses and water, which every child in the country is doomed to swallow, at the cost of a sour stomach and flatulent bowels, displayed in the almost universally resulting symptoms of colic, green stools, and vomiting. The antediluvian mothers had no molasses and water for their children, who lived nevertheless, a thousand years. Certainly nothing can be more conformable to the dictates of nature, than an early application of the infant to the mother's breast. If we could suppose a woman in a state of nature, to be delivered alone, under the shade of some primeval forest, and unsuspected observe her conduct, we should witness the instinctive movements and promptings of nature, that would far better guide us in the management of such affairs, than the crude conceptions of those who are ever ready to boast of the excellence of art or skill over the sure suggestions of instinct. Such a mother would soon be aroused from the weakness and languor that succeed the pangs and throes of childbirth, by the cries of her helpless offspring. She would take it, as soon as a little returning strength should permit, into her arms, and the newly-born child would probably not nestle a moment on the maternal bosom, without finding the source of its future aliment: the very anatomical structure, both of the maternal arms and breast, and the instinctive motions of the child's head, would bring its lips speedily in contact with the nipple. But we, wiser than our great instructress, often keep the new-born child away from its natural resting-place, and deprive it of the most appropriate nutriment for two or three days, in order to eschew sore nipples, or to propitiate some other imaginary evil; while we allow the breast to fill almost to bursting, and actually to inflame from distension, before we admit that preparation to be complete, which our presumptuous interference, in this manner, vitiates and troubles. The child ought to be put to the breast as soon as the mother is strong enough to take it.

**Medicine.**—It is a good custom to give an aperient medicine on the third day, or about seventy hours after delivery; while, in most cases, it is safest to defer the administration, at least up to this period. The perturbations of vital action in the abdominal viscera, occasioned by medicines administered too early, are observed to result in symptoms of congestion, and of peritoneal fever, in not a few instances, particularly where an epidemic tendency to the latter malady exists.

It should be well understood in the lying-in apartment, that no medicines are to be given to the mother or the child, without the sanction or advice of the medical attendant. In our part of the

country, it is exceedingly common for the nurse to take upon herself the function of prescriber, and administer a dose of severe cathartic medicine, upon her own responsibility; which, however great and important she may deem it, remains after all, with the physician. He it is who bears the burden, and undergoes all the trouble and anxiety and responsibility of the management. He ought, therefore, always to direct that no interference with his rights should be suffered to take place. There are many reasons why he should be the sole director of the case; for it is not a matter of indifference what particular article is selected, any more than it is of little consequence at what moment the medicine (if any) should be administered.

Castor oil is the article in most request for this period of the confinement; and in a dose of half an ounce operates sufficiently well. Where the castor oil is particularly disagreeable, a proper quantity of magnesia and rhubarb; of infusion of senna; of Epsom salts; of Seidlitz powders, may be substituted; but, in general, the oil is to be preferred, because of the great certainty and moderation with which it operates on the bowels.

**Lochia.**—The lochial discharges grow gradually less abundant, and of a paler color. The tone of the womb itself must determine, in a great measure, the duration and amount of the discharge. It disappears in the third week, and sometimes earlier. Not a few women continue to have a show in the fifth week; and, in fact, the Jewish women had their purification at the fortieth day, which probably might be founded on observations as well suited to the inhabitants of this country as those of the Holy Land.

**Etherization.**—In speaking of the various points in the Conduct of a labor, I cannot well eschew to say something upon the employment of those anæsthetic agents whose recent irruption into the domain of Medicine and Surgery has been so sudden, violent, and overbearing.

To avoid altogether any notice of these agents would have been more consonant with my taste as well as with my views of medical duty; but as I feel that those who may please to have this book will surely expect to find a record of my opinions on anæsthesia as an obstetric resource, I feel constrained to overcome my reluctance to say anything concerning it.

In Philadelphia, the use of ether and chloroform in Surgery and Midwifery has made no great progress, notwithstanding the very numerous reports upon the benefits derived from those agents in



Europe and in parts of the United States. Some of our surgeons in this metropolis have applied the ether inhalation in their surgical cases—and some persons in labor have likewise been rendered insensible to their pain by breathing the vapor of chloroform or ether. I am not able to say in how many instances this recourse has been had here; but I should suppose that not fewer than some thousands of women have been subjected to it on account of labor; and I believe the practice does not become much more common and general in our community; and that not a great many more women in labor will have been etherized in 1856 than in 1850–51.

I do not feel inclined at all to deny that there may be instances of severe suffering for women in labor, that ought to be mitigated or even wholly obviated by casting the woman into the profound anæsthesia of etherization. But what I do desire to say is this, viz: that, having carefully studied the reports upon etherization and chloroformization, whether those of this country or those produced in Europe, I remain as yet unconvinced—either of the necessity for the method, or of its propriety as an ordinary practice.

1st. As to its necessity in ordinary cases of parturition. The average duration of labor is four hours, and I have shown at page 293 that the number of labor pains is about fifty; and that they last, each about thirty seconds, so that the parturient woman really suffers from labor pains about twenty-five minutes and no more—and these twenty-five minutes are distributed among the four hours of a labor of mean duration.

It has never been pretended that the motive for the anæsthetic practice has any connection with the other pains of women in labor, but only with the suffering from *contraction* or *labor-pains*; for, though we may well suppose that women suffer from painful sensations independent of those arising from the actually contracting womb, yet we find them in general, easy, complacent, and but too happy when *the pain* is off. Hence the ether is exhibited for *the pain*, and for no other motive.

I contend, that it is to an exaggerated notion of the nature of labor-pains we owe the too frequent use of ether in our art; for if the mean of labor-pain be only twenty-five minutes in all, there can be no necessity in the average of cases for its exhibition. I should find the objection to it less and the inducement greater, were the twenty-five minutes of pain to be always twenty-five consecutive minutes. When they are distributed through two hundred and forty minutes, or four hours, I look upon the exhibition as unnecessary and uncalled for.

2d. The representations that have been made by the friends of

anæsthesia, of the harrowing distress endured by women in childbirth, do not consist with the general state of facts in the case; and it is quite true that a lying-in room is, for the most of the labor, a scene of cheerfulness and gayety, instead of the shrieks and anguish and despair that have been so forcibly portrayed.

Few women lose their health or their lives in labor, and the dread of future sufferings is insufficient to prevent the increase of the family. As to the necessity of the Letheon practice, the birth of the past myriads of the race shows that it is not necessary.

The propriety of resorting to the use of chloroform and ether as means of obviating the pain and hazards of labor is a question to be settled by an estimate of the safeness as well as necessity of it. It were well, before making up his mind upon this point, were the Student to make himself aware that the encephalon is a compound organ, or a compound bulbous nervous mass, part of which (the hemispheres) are devoted to the offices of intellection; part, the cerebellum, to the duty of co-ordinating or regulating the movement, or the force which is generated perhaps by the whole nervous mass; a part, the tubercula quadrigemina, to the faculty of seeing or vision; and a part, the medulla oblongata, to the important office of governing or giving origin to the act of respiration. Thus we have the brain of intellection, and those of co-ordination of force, of vision, and of respiration. They might be denominated the thinking, co-ordinating, seeing, and breathing bulbs of the nervous mass.

Now, it appears from very numerous reports contained in the *Comptes Rendus* of the French Institute, and from papers in various journals containing accounts of experiments made both in men and in animals, that to breathe for a few minutes the vapor of ether or of chloroform and various volatile liquids, is to cast the subject into an insensibility called anæsthesia, so profound that the cautery, whether actual or potential, the bistoury, the ligation, or the forceps are equally incapable of exciting any sense of pain. Nay, more, that the patient, in some instances, looks upon the incision of his flesh without feeling the knife.

Very soon after ceasing to inhale the vapor, the insensibility disappears, and the individual, upon recovering the use of his faculties, is with difficulty persuaded to admit that he has been subjected to a severe operation; while the mother is incredulous as to her having borne a child during her sleep. Such are the facts. The Student ought to know them. Half an ounce to an ounce of ether poured upon a sponge, and held to the mouth and nose, or a drachm to two or three drachms of chloroform administered in the same way, bring on the

insensibility in from three to ten minutes, less or more. The insensibility, once produced, may be maintained according to the pleasure of the physician, by repeating the application of the moistened sponge from time to time upon any manifest signs of returning consciousness.

The statements show that the power of these anæsthetics is capable of abolishing the sensibility, without greatly interfering with the motor power of the subject—or it may abolish the motor power, and allow the sensitive power to be acute, as in health. The inhalation may produce anæsthesia of the thinking brain, yet leave the co-ordinating, breathing, and seeing brains intact—or it may put a temporary end to the power of the cerebellum and tubercula quadrigemina, without influencing the other parts of the encephalon. In short, there is no ascertained law of progression in the activity or power of the anæsthetic agent, chloroform; and no man knows, when he begins to administer the article, upon what part of the brain it will proceed to exert its benumbing power. M. Flourens has shown that all the other parts of the brain may be safely suspended of their forces, provided the medulla oblongata remain unattacked by the agent; and that, as long as the medulla oblongata retains its energy, it is capable of recalling the other bulbs to life and activity through its own force, provided the further inhalation of the letheon be arrested. Hence he calls the medulla oblongata the *vital tie* (*le nœud vital*), since it binds the rest of the encephalon and nervous system with its “silver cord.”

Now I have to suggest to the Student the propriety of asking what would be his feelings, provided, in any such case, this silver cord should be loosened; and I ask him whether, if the anæsthesia should proceed, at first, or secondarily, to attack and overthrow the power of the medulla oblongata, his patient would not be instantly deprived of life! For if to breathe is to live, to be deprived of the uses of the medulla oblongata is to die—since on that *nœud vital* depends the whole business of the oxygenation of the body.

Many, and but too many examples of the power of these tremendous agents to overthrow, almost instantly, the force resident in the medulla oblongata, are spread upon the records of medicine in the last few years. I do not well understand how those persons can recover their composure or their complacency, who, by an unnecessary and inappropriate resort to so dangerous a process, have seen the victims of this extraordinary power struck lifeless before their eyes.

It behooves not me to enter into the lists with the surgeons who cast their patients into the deep insensibility of etherization before performing their operations—*sum cuique tribuito* is a proper law for me in this place. But I cannot avoid the feeling of astonishment

which seizes upon me when I read the details of cases of midwifery that have been treated during the long profound *Drunkenness* of etherization. To be insensible from whiskey, and gin, and brandy, and wine, and beer, and ether, and chloroform, is to be what in the world is called Dead-drunk. No reasoning—no argumentation is strong enough to point out the ninth part of a hair's difference between them—except that the volatility of one of the agents or its diffusibility as a stimulant narcotic, enables it sooner to produce its intoxicating effect, which is sooner recovered from in one case than in any other of the use of an intoxicating drug.

I showed, in the first part of this section, why I deemed the use of etherization in Midwifery unnecessary; in the second part, I have endeavored to show why it is improper. I have by no means said what I am inclined to say as to the doubtful nature of any processes, that the physician sets up, to contravene the operation of those natural and physiological forces that the Divinity has ordained us to enjoy or to suffer. The question is often propounded as to the Beneficence that ordained woman to the sorrow and pain of them that travail in childbirth. It ought to be taken for granted, without any, the least, disposition to what is called *canting*, that some economical connection exists betwixt the power and the pain of labors. While, therefore, we may assume the privilege to control, check, and diminish the pains of labor whenever they become so great as to be properly deemed pathological, I deny that we have the professional right, in order wholly to prevent or obviate these physiological states, to place the lives of women on the hazard of that *progress* of anæsthesia, whose laws are not, and probably can never be ascertained, so as to be truly foreknown. Notwithstanding I have expressed the above opinions in regard to etherization in Midwifery, which might suffice to expose my sentiments upon that topic, still, my respect for eminent brethren who think differently, calls upon me to acknowledge their equal rights, and probably superior claims to the confidence of the Student. Professor Simpson, of the University of Edinburgh, it is well known, is among the most distinguished and able advocates of anæsthesia in our art. I will not, therefore, refrain from laying before the reader the following letter from that eminent gentleman, with my answer to his communication.

*Letter from Professor Simpson.*

EDINBURGH, January 23, 1848.

DEAR SIR: By private letters from America, brought by the last steamer, I hear that in most of the cities of the Union, your chemists



had failed in preparing proper chloroform; and that, consequently, most experiments tried with it had been unsuccessful. In Great Britain, and on the continent of Europe, chloroform has everywhere entirely, or nearly entirely, superseded the use of sulphuric ether, as an anæsthetic agent. The want of success which has attended its employment in America is, perhaps, owing in a great measure to an error of my own, viz: to my not stating, in my original account of it, the proper method of purifying it. This and other omissions were owing to the haste with which my first paper was drawn up.

I will feel, therefore, deeply obliged by your taking any measures that you may deem fit, to circulate amongst American medical men the formula which I inclose for the preparation of chloroform. It is the formula used by Messrs. Duncan and Flockhart, our Edinburgh druggists, who have already manufactured enormous quantities of it. They always now are able to produce it as heavy as 1500 in specific gravity. Their first distillation of it is made in two large wooden barrels, with a third similar barrel as a receiver. They throw hot steam into the first two barrels, which serves to afford both sufficient heat and water for the process. They employ sixty pounds of chloride of lime at each distillation, and have been able to manufacture three hundred ounces of chloroform a day. Each ounce of the chloride yields, in the long run, about half an ounce of chloroform: consequently, to obtain three hundred ounces (as above), about six hundred ounces of bleaching powder are required. At first, they could only make ten or twenty ounces per diem, then they rose to sixty, and latterly, enlarging their barrels, they can make, as I have said, three hundred ounces in the twenty-four hours.

Various other chemical houses in Edinburgh, Liverpool, Glasgow, York, London, &c., are busy manufacturing it in great quantities. They keep their formulas as secrets. But none of them make so good an article as Duncan and Flockhart, whose formula I append.

The statements which I have already made may show you to what an extent the chloroform is used in this country; and our chemists tell me that the demand for it steadily increases with them.

\*In *Surgery*, its use is quite general, for operations, painful diagnosis, &c. My friend, Mr. Andrew Wood, has just been telling me of a beautiful application of it. A boy fell from a height, and severely injured his thigh. It was so painful that he shrieked when Dr. Wood tried to handle the limb, and would not allow of a proper examination. Dr. W. immediately chloroformed him—at once ascertained that the femur was fractured—kept him anæsthetic till he sent for his splints—

and did not allow his patient to awake till his limb was all properly set, bandaged, and adjusted.

In *Medicine*, its effects are being extensively tried as an anodyne, an anæsthetic, a diffusible stimulant, &c. Its antispasmodic powers in colic, asthma, &c., are everywhere recognized.

In *Midwifery*, most or all of my brethren in Edinburgh employ it constantly. The ladies themselves insist on not being doomed to suffer, when suffering is so totally unnecessary. In London, Dublin, &c., it every day gains converts to its obstetric employment, and I have no doubt that those who most bitterly oppose it now, will be yet, in ten or twenty years hence, amazed at their own professional cruelty. They allow their medical prejudices to smother and overrule the common dictates of their profession, and of humanity.

No accidents have as yet happened under its use, though several hundred thousand must have already been under the influence of chloroform. Its use here has been a common amusement in drawing-room parties, for the last two or three months.

I never now apply it with anything but a silk handkerchief. In surgical cases and operations, the quantity given is not in general measured. We all judge more by the *effects* than the *quantity*. Generally, I believe, we pour two or three drachms on the handkerchief at once, and more in *a minute*, if no sufficient effect is produced, and we stop when sonorous respiration begins. Not unfrequently spasms, rigidity, &c., come on, but they disappear as the effect increases, and none of us care for them any more than for hysteric symptoms; nor do they leave any bad effect. But the mere *appearance* of them is enough to terrify a beginner.

I shall be glad to hear how the cause of anæsthesia gets on among you, and I remain, with great respect,

Very faithfully yours,

J. Y. SIMPSON.

To PROFESSOR MEIGS.

The following is the Formula for Chloroform, communicated by Professor Simpson:—

"Take of Chloride of Lime, in powder	4 pounds.
Water . . . . .	12 "
Rectified Spirits . . . . .	12 fluidounces.
	'Dumas.'

"The chloride of lime and water being first well mixed together, the spirit is added. Heat is then applied to the still (which ought not to be more than a third full), but as soon as the upper part of the still

becomes warm, the heat is withdrawn, and the action allowed to go on of itself. In a short time the distillation commences, and whenever it begins to go on slowly, the heat is again applied. The fluid which passes over, separates into two layers, the lower of which is Chloroform. This, after having been separated from the weak spirit forming the upper layer, is purified by being mixed with half its measure of strong sulphuric acid, added gradually. The mixture, when cool, is poured into a leaden retort, and distilled from as much carbonate of baryta by weight, as there is of sulphuric acid by measure. The product should be allowed to stand over quicklime for a day or two, and repeatedly shaken, and then re-distilled from the lime."

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*Reply to Prof. Simpson's Letter.*

PHILADELPHIA, Feb. 18th, 1848.

DEAR SIR: I have to acknowledge the favor of your letter of Jan. 23d, which I received yesterday.

The chemists in this country have produced very perfect chloroform, of the specific gravity of 1450, as I am informed, and which is much employed in dentistry operations, and to a considerable extent also in surgery.

I presume you will, ere this date, have received copies of Prof. Warren's pamphlet on "Etherization," which may inform you, very fully, as to the use of the anæsthetic agent in the Massachusetts General Hospital, and in Boston. That eminent gentleman is more reserved as to the obstetric employment of the agent; much more so, I understand, than either Dr. Channing or Dr. Homans, and other practitioners, who make use of it very commonly.

In New York, as I learn, the surgical application of chloroform is common, while its obstetrical use has not as yet acquired a general vogue.

In Philadelphia, we have the Pennsylvania Hospital, with more than two hundred beds. A very considerable amount of surgical practice, which renders that house a favorite clinical study for medical students of the United States, has not, as yet, furnished a single example of the exhibition of chloroform or ether as anæsthetic agents. The Surgical Staff of the institution have not become convinced of the propriety of such a recourse in the operations performed there.

In the Jefferson College, to which I am attached, as Professor of Midwifery, etc., there is a Medical and Surgical Clinic held on the Wednesday and Saturday of each week. The resort of surgical cases there is very great, and a Clinical day rarely passes without some sur-

gical operations before the classes. The clinical professors (in surgery), Drs. Mütter and Pancoast, almost invariably employ the chloroform, and the successful exhibition of the article has entirely confirmed them in their opinion of its great value. Some of the operations have been of the gravest character, and no serious event has occurred to check the career of the remedy.

As to its employment in Midwifery here, notwithstanding a few cases have been mentioned and reported, I think it has not yet begun to find favor with accoucheurs.

I have not exhibited it in any case; nor do I, at present, know of any intention in that way, entertained by the leading practitioners of obstetrical medicine and surgery, in this city. I have not yielded to several solicitations as to its exhibition, addressed to me by my patients in labor.

As to the extension of the anæsthesia in the Southern and Western States, I am not at present enabled to give you information. I believe the practice is slowly gaining converts, and that it will become more and more common ere long.

You may perhaps feel surprised at this admission on my part, seeing that I am still a recusant; and I ought, therefore, to be allowed to explain myself, lest I should continue to appear unreasonable in your eyes.

Having carefully read the *Comptes Rendus* of the Royal Academy of Medicine of Paris, which contained full reports of the copious discussions on the question of the Letheon, a few months since, and having also seen the English and American Reports in the Journals, and particularly having read your own pamphlet of "Remarks," &c., I may not properly be accused of ignorance of the power, effects, or motives, in relation to chloroformization in surgery, or obstetrics. The copy of your own pamphlet, for which I now beg leave to thank you, would necessarily have put me *au niveau* on the subject.

Not being myself engaged in the practice of surgery, proper, I prefer to avoid any expression of opinion as to the propriety of the practice; and I do this upon the principle, *suum cuique tribuito*. It would be an impertinence in me, were I to interfere with the conduct of the surgeons.

But, in Midwifery, to which a long and extensive practice has enured me, and rendered me a familiar dispassionate witness of its various forms and phenomena, I am less liable to misconceptions. And here, allow me to say, I have been accustomed to look upon the sensation of pain in labor as a physiological relation of the power, or force; and notwithstanding I have seen so many women in the throes



of labor, I have always regarded a labor-pain as a most desirable, salutary, and conservative manifestation of life-force. I have found that women, provided they were sustained by cheering counsel and promises, and carefully freed from the distressing element of terror, could in general be made to endure, without great complaint, those labor-pains which the friends of the anæsthesia desire so earnestly to abolish and nullify for all the fair daughters of Eve.

Perhaps, dear sir, I *am* cruel in taking so dispassionate a view of the case; and it is even possible that I may make one of the number of those "amazed" converts of whom you speak in your worthy letter to me. But, for the present, regarding the pain of a Natural labor as a state not, by *all* possible means, and always, to be eschewed and obviated, I cannot bring myself to the conviction that of the two, whether labor-pain or insensibility, insensibility is to be preferred.

If I could believe that *chloroformal* insensibility is sleep indeed, the most considerable of my objections would vanish. Chloroform is not a soporific; and I see in the anæsthesia it superinduces a state of the nervous system in no wise differing from the anæsthetic results of alcoholic potations, save in the suddenness and transitiveness of its influence.

I freely admit, for I know it, that many thousands of persons are daily subjected to its power. Yet I feel that no law of succession of its action on the several distinct parts of the brain has been, or can be hereafter ascertained, seeing that the succession is contingent. Many grave objections would perhaps vanish, could the law of the succession of influences on the parts of the brain be clearly made out, and its provisions insured. There are, indubitably, certain cases in which the intellectual hemispheres are totally hebetized, and deprived of power by it, while the co-ordinating lobes remain perfectly unaffected. In others, the motor cords of the cerebro-spinal nerves are deprived of power, whilst the sensitive cords enjoy a full activity, and *vice versa*.

In some instances, the seeing brain enables the patient to look upon the application of a cautery that he does not feel, while it sears him, or of a bistoury whose edge gives him no pain. In others, the influence of the agent upon the sources of the pneumogastric and phrenic nerves is dangerously, or at least alarmingly, made manifest by modifications of the respiratory force. It appears to me, therefore, quite certain, that there is no known law of succession of the ether-influences on the several parts of the brain. It is known that the continued aspiration of the vapor brings at last the medulla oblongata fully under its anæsthetic power, and the consequent cessation of respiration

which determines the cessation of the oxygenation of the blood, and thereby of the brain, is death. M. Flourens' experiments, and others, especially those by the younger Mr. Wakley, of the *Lancet*, prove very conclusively that the aspiration of ether or chloroform, continued but a little longer than the period required for hebetizing the hemispheres, the cerebellum, the tubercula quadrigemina, and the cord, overthrows the medulla oblongata, and produces thereby sudden death. I fully believe with M. Flourens, that the medulla oblongata is the *nœud vital*, and that, though later brought under the power of chloroformization, it is always reducible under it. Hence, I fear that, in all cases of chloroformal anæsthesia, there remains but one irrevocable step more to the grave.

I readily hear, before your voice can reach me across the Atlantic, the triumphant reply that an hundred thousand have taken it *without accident!* I am a witness that it is attended with alarming accidents, however rarely. But should I exhibit the remedy for pain to a thousand patients in labor, merely to prevent the physiological pain, and for no other motive—and if I should in consequence destroy only one of them, I should feel disposed to clothe me in sackcloth, and cast ashes on my head for the remainder of my days. What sufficient motive have I to risk the life or the death of one in a thousand, in a questionable attempt to abrogate one of the general health conditions of man?

As to the uses of chloroform in the medical or therapeutical treatment of pain, the question changes. There is no reasonable therapeia of health. Hygienical processes are good and valid. The sick need a physician, not that they are well. To be in natural labor, is the culminating point of the female somatic forces. There is, in natural labor, no element of disease—and, therefore, the good old writers have said nothing truer nor wiser than their old saying, that "*a meddling midwifery is bad.*" Is chloroformization meddling?

Your countryman, old Thomas Rainald, in the "Woman's Booke, or The Byrthe of Mankynde," at fol. liii., says, "Very many be the perilles, daungers, and thronges, which chaunce to women in theyr labour." These are the cases requiring our therapeutical and chirurgical intervention. You will, my dear sir, think me a hopeless recusant, if I decline the anæsthesia here also. I pray you, therefore, allow me to state my reasons for such recusancy.

If I were amputating a limb, or extirpating a tumor, I should see all the steps of my incisions, ligations, &c. But if I apply my forceps in a right occipito-posterior position (fourth of Baudelocque), I know that I thrust the blade of the male branch far upwards betwixt the

face of the child and the upper third of the vagina, which, in this case, is already greatly expanded, and that the extremity of the blade is separated from the peritoneum only by the mucous and condensed cellular coat of the tube. Now, no man can *absolutely* know the precise degree of inclination his patient will give to the plane of her superior strait, while in pain; an inclination to be modified by every movement of her body and limbs. Under such absolute uncertainty, the best guide of the accoucheur is the reply of the patient to his interrogatory, "Does it hurt you?" The patient's reply, "Yes," or "No," is worth a thousand dogmas and precepts, as to planes and axes, and curves of Carus. I cannot, therefore, deem myself justified in casting away my safest and most trustworthy diagnosis, for the questionable equivalent of ten minutes' exemption from a pain, which, even in this case, is a physiological pain.

Having thus, in my own defence, and not as attacking your opinion, set forth the motives that have hitherto served to restrain me from the administration of chloroform, I desist from giving you any farther trouble in this line of thought. I have, Sir, a far more pleasing duty to perform, in saying that your name is as well known, perhaps, in America as in your native land, and to congratulate you on the extension of your fame. I had the pleasure to read your interesting letter to my class, consisting of several hundred young gentlemen, who listened to your words with the same respect they would have paid to you, had they been pronounced by your own lips. They will disperse themselves in a few days hence, over all the States of the Union, and thus will have it in their power to report the latest dates of your opinions as to chloroform. I shall also allow it to be published on the first proximo, in a medical journal of extensive circulation. You will herein perceive the readiness with which I assist in disseminating your views. It is not without regret that I find myself opposed to your opinions in the case. That difference ought not, however, in the least degree, to affect those sentiments of respectful consideration and real esteem with which I am, dear sir, very faithfully, your obedient servant,

CH. D. MEIGS.

PROFESSOR SIMPSON, &c.

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Having reprinted the foregoing in this new edition, in order that the reader might see what I said and thought, in a Journal, in 1848, I have now to state that I adhere, in 1852, to these opinions, and consider them sound and just, and recommend them with a clear conscience to my readers.

Since the date of my letter to Prof. Simpson, I have been induced by many motives to administer ether (never have I given, nor will I ever give any person chloroform), in a considerable number of cases: many of the women were delighted with its operation after they had recovered from the intoxication, but about an equal number appeared to have been disgusted with, or indifferent to its effects. I have certainly observed, in most of the experiments, that it lessened the frequency and power of the pains; and, in some of them, I was obliged to lay it aside wholly, until the motor powers of the womb, recovering from the stupefying influence of the intoxication or dead-drunkenness of the woman, allowed the labor to proceed, or to be terminated by a forceps operation. I have lost two children in labor because of the anæsthesia, as I fully believe; and some of my patients have had affections and post-partum symptoms, the remembrance of which makes me well content to remain among the opponents of the practice.

I say these things, not with any feeling of disrespect, nor with a desire to disparage those of my medical brethren who habitually employ the anæsthetics in Midwifery, but in order that I may speak the truth as it appears to me, and let that truth pass for as much as it is worth, and no more. I shall only add that I sincerely regret the introduction of anæsthetics into Midwifery; not because they are not useful and laudable in some rare cases, but from a conviction that the use of them has become a great abuse, which I believe will become greater until the day—no distant one—shall arrive, when mankind, and the profession also, shall have been convinced that the doctors have made a mistake on this point, in this part of the nineteenth century.

In Sept. 1856, I remain unconvinced of the propriety of using ether in all labor cases, indiscriminately. Since 1852, I have allowed several of my patients to take ether, on account of pain that seemed excessive. All my experience leads me to hold to the opinions expressed in my letter to Dr. Simpson. I am still quite convinced that the discovery of anæsthesia in midwifery, has done more harm than good, and I believe its use will decline, and not increase. I think it is declining already.